

THE NEW ANIMAL CELLULAR THERAPY

AN INNOVATION IN THERAPEUTICS

Its Origin, Nature, Action, Uses, and New Contributions
to Medicine.

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PREFATORY NOTE.

In the preparation of this somewhat comprehensive discussion of a new departure in animal as well as in cellular therapy, the attempt has been made to present the subject in as conservative, scientific and concise a manner as possible. Such an exposition is indicated because of the wholly original character of the basic principle of this therapy and of a large majority of its clinical results, and is made possible because the remedial innovation described has successfully passed a most critical and exhaustive examination of its therapeutic merits.

No positive conclusion unsupported by legitimate scientific proof will be found in this publication. If there be any error in the evidence submitted, the fault will be in the writer's interpretation, not in his statement of facts.

In addition to assisting physicians using this combined therapy—for it is not represented by a single remedial unit—this discussion presents many original and well established facts which should stimulate similar original research in cell tonics and develop a new line of therapeutic preparations. For example, the composition of the Lymph Compound teaches that a fluid containing a properly prepared and emulsified sediment of animal cells may be safely used subcutaneously, and that the active principles (herein defined) of pure unfiltered lymph and testicular secretion possess powerful cell tonic-alterative-nutritive properties. Also the study of the clinical action of this cell tonic has positively demonstrated that our previous conceptions of the limitations of therapy in chronic degenerative diseases are partly erroneous.

The writer considers that in announcing the original facts he has collected during his researches in and medical directorship of this unique class of animal derivatives, he is doing a strict duty to his profession ; and his efforts, although imperfectly performed, should result in a distinct service to future developments in animal as well as general therapeutics.

I herewith gratefully acknowledge the valuable assistance which Dr. Hamilton Forline, of this city, has given me in the compilation of clinical data and the execution of animal experiments, the results of which have been used in the demonstration of certain physiologic effects of this therapy. The greatest praise is likewise due to nearly every physician using the Lymph treatment for the accurate, scientific manner in which case histories and results have been reported on the regulation examination sheets. Without these formulated reports a logical explanation of the indications for and limitations of the Lymph Compound would have been impossible.

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CHAPTER I.

The New Animal Therapy Permanently Established— History of Lymph Compound and American Animal Therapy Association.

The facts herein stated, for the first time in book form, regarding a radically new development in animal therapy, are published with the understanding that the merits and original character of the therapy discussed have been sufficiently recognized and studied to establish the new departure upon a permanent and scientific basis.

That the writer is not premature in describing the Roberts-Hawley Lymph Compound as a fixed, scientific addition to our *materia medica*, and one which will influence, to a marked degree, future research in cellular and animal therapy, should be apparent to the reader after reviewing the following facts:

First: It has successfully encountered the severest test of therapeutic value ever applied to the clinical action of a single remedy or even group of remedies.

Second: Its clinical action and merits have been established by well authenticated statistical data tabulated on complete case-report forms of the most approved character, filled out by several thousand competent, reputable practitioners.

Third: Its physiological action has been demonstrated, so far as possible, by the usual scientific methods of laboratory study with lower animals.

Fourth: The formula and method of preparation, herein

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announced, have been standardized, the active principles in the compound separated and their nature and effects adequately determined, and the process of combining and preserving the ingredients is wholly in accord with established principles of chemistry.

Fifth: The therapy has been used in perfected form nearly three years and the number of thoroughly competent physicians using the treatment has continually and rapidly increased *pari passu* with the progress made in its theoretic and practical study, and the unusually superior character of its authentic clinical results.

We may, therefore, announce and discuss all facts, theories and hypotheses, established or indicated by the experimental and clinical investigations of this new therapy, with the same confidence and definiteness, using rational conservatism, as are used in describing other recognized medical materials, and do so without being guilty of exhibiting excessive zeal or premature dogmatism.

It is the purpose of the author that this exposition shall be as concise, logical and free from hypothetical conclusions as is possible, consistent with completeness and clearness of discussion. When the proof of statements made below has been sufficiently discussed in other literature, such proof will be repeated in epitome, not in detail, although definite references will be made in the text. However, most of the propositions regarding this therapy have not heretofore been sufficiently demonstrated.

As this book will be used as a guide to those investigating as well as those using this new departure in animal therapy, the writer wishes to state that he appreciates the tendency this opportunity affords to encourage optimistic statements and to overlook negative deductions and results. It is certainly true that when a physician has repeatedly witnessed decided laboratory and clinical results of an unusual character with a given material which is wholly new in formula and equally so in action, he is very liable, when describing these observations, to allow his enthusiasm unintentionally to modify his statements of fact and predictions of possibility.

INTRODUCTION AND HISTORY.

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The writer freely admits the existence of enthusiasm in his opinions of this remedy and does not deny that the feeling is strong; he only claims to realize the possible influence of this condition of mind, and promises to guard against it. A fault anticipated is still a fault, but far less menacing. Several years ago when our hypotheses regarding the action and uses of this remedy were gradually becoming well demonstrated theories, the writer and his associates very justly exhibited enthusiasm and optimism in their efforts to hasten more general introduction. Exercise of these impulses being no longer necessary to the advancement of the therapy, our energies should now be directed by conservative principles to the end that not only this remedy may be protected, but that the cell tonic therapy it so ably exemplifies may be advanced instead of being obstructed by the exhibition of unnecessary zeal. Thus do we see an excellent example of the indications for and the value of optimism in establishing a meritorious remedial agent, and the same qualities of proper conservatism in protecting the results of such liberalism when indications for the latter cease to exist.

HISTORICAL.

Dr. B. F. Roberts began regularly to use the Roberts Lymph Compound in 1896. During the next year a few other physicians began its use. About one hundred physicians used this preparation during the two years 1897 and 1898. In the latter part of 1898 Dr. Roberts brought his preparation to Chicago. Shortly afterward Dr. Joseph R. Hawley began clinical and laboratory experiments with the preparation, and about six months later became Medical Director for the New Animal Therapy Company, which company immediately began the manufacture and introduction of the Roberts Lymph Compound. In order to avoid, so far as possible, misuse of the remedy and to extend and strengthen the then imperfect knowledge of indications and limitations, the sale was for a time confined to those physicians who agreed properly to report all cases before and during treatment and to follow instructions of the originators

regarding selection of cases. As a result of this plan, and also of extensive experimental research, the use of the Lymph soon became general and Drs. Hawley and Roberts were enabled to still further improve the Lymph Compound. In 1899 the preparation was named the Roberts-Hawley Lymph Compound, differing from the original preparation chiefly as follows: It contained more lymph, orchitic fluid and lymphatic extracts, and additional extracts derived from the brain and cord of goats. The active principles were more concentrated and preservation more perfect. Thus, as will be seen, the changes were more those affecting quantity than quality. Later, the composition of the preparation was standardized by a fixed, definite proportion of the various ingredients and their active principles.

As an outgrowth of the unusual results obtained in certain chronic disease from the use of the perfected preparation, and also the well proven value of the original plan of case reports and mutual assistance previously inaugurated, a representative body of physicians using the remedy organized the American Animal Therapy Association in New York City, September 30, 1899. The functions of this organization are unique, in that they effectually constitute a plan of mutual assistance by means of systematized correspondence, bi-monthly bulletins, quarterly journals and semi-annual meetings. The Bulletins are devoted to practical work, giving information derived from a complete system of case reports and clinical observations furnished by the members, as well as from the laboratory study of the Medical Director. The many valuable results of this Association clearly teach the necessity for similar organized assistance in introducing distinct therapeutic innovations—if the originators have accumulated sufficient proof to warrant such a procedure. The present officers of this association are Dr. Willis P. King, of San Antonio, Tex., President; Dr. B. H. Detwiler, of Williamsport, Pa., Vice-President; Dr. G. B. Sweeny, of Pittsburg, Pa., Secretary; Dr. Joseph R. Hawley, of Chicago, Ill's., Medical Director and Editor of Journal.

CHAPTER II.

Formula of the Lymph Compound—Method of Preparation and Results of Same.

FORMULA.

As now prepared, the Lymph Compound contains the following ingredients: From "common" goats seven to twelve months old, properly dieted and environed for at least three to four months before use, the following fluids and fluid extracts are derived, the structures and fluids being removed before and immediately after death: Pure lymph; testicular secretion, chiefly from globus major and minor and epididymis; extracts, highly concentrated and used in form of an emulsion of lymph glands, testicle pulp, gray matter of brain and spinal cord. From the testicles of bulls castrated before death, orchitic fluid, chiefly from globus major and minor and epididymis, is expressed within an hour following the removal of the organs—also extracts of the pulp of these testicles. The orchitic fluid now used contains very little blood, the blood vessels being dissected out of testicle before expression of fluid. The greater part of orchitic fluid (and extract) is derived from the bull's testicles.

As a menstruum or vehicle with which to dilute and emulsify the above named highly concentrated fluids and extracts: The serum of goats' blood 20 parts, and carbon water 80 parts, in which is dissolved a small amount (10 drops of Lymph Compound contain about 1-60 grain) of purified aurii et natrii chloridum, made compatible by a

special process. This salt, properly prepared and gradually added in a very dilute solution, prevents coagulation and assists emulsification of the pure lymph and testicular fluid and partly assists in rendering the Compound antiseptic. As this salt is incompatible with animal matter, it cannot be added to this preparation without the chemical alteration referred to above.

Comparison with previous publications will show a few minor alterations in above ingredients, viz., age of goats being older, orchitic fluid containing little or no blood (thus concentrating this fluid and making preservation easier) and better preparation of menstruum. Recently the lymph and extracts have been even more highly concentrated.

PREPARATION.

Before the active ingredients and menstruum are combined they are both subjected to a process which renders them sterile and preserves the protoplasm of the cells. This process consists of three steps, viz.: (1) fumigation under pressure with diluted chlorine and permanganate of potassium vapors; (2) sterilization with carbonic oxide under 200 atmospheres, pressure; and (3) subjection to sterilized air pressure. The active ingredients—after filtration through a finely porous material—are first subjected to above process so as to allow menstruum to wash out accumulations of the former, when the latter passes through the apparatus. An unusual degree of preservation of the animal ingredients may be thus effected without the use of the usual antiseptics, all of which, with one exception, would lessen or destroy the potency of the active principles in the lymph and orchitic fluid. The final filtration is made through a slightly less porous composition.

Results of Preparation: 1. The thick, almost semi-solid active principles are perfectly emulsified in menstruum. 2. By original process of filtration used, all connective tissue, fat cells and coagula are removed, leaving only lymphocytes, spermatozoa and other natural ingredients of animal fluids used. 3. The process permits the injection of a sedimentary fluid or emulsion—that sediment consisting

of the cells, etc. of lymph, testicular fluid and small amount (unavoidable) of blood. 4. The internal secretions or products of the protoplasm of cells and the sera or plasma of lymph and orchitic fluid are indefinitely preserved in what has proven to be a therapeutically active condition. The degree of preservation of animal derivatives by this process is the highest yet accomplished for therapeutical purposes. Bottles of Lymph Compound, properly sealed and packed, have not lost potency after standing eighteen months. Lymph shipped to Northern India, Philippine Islands and other equally distant points has arrived in perfect condition, as evidenced by physical and microscopical appearance, as well as the excellent clinical results obtained. And this in spite of persistent high temperature encountered in transit during the summer months.

How to Keep the Lymph Compound: Complete instructions are printed on package. If the preparation is kept air-tight, except when in immediate use, is not carelessly transferred or used, and is kept in an atmosphere above 35 degrees and under 95 degrees Fahr., it will not lose its potency or purity. The antiseptic character of the Lymph Compound renders its contamination very difficult.

CHAPTER III.

Physiological Action.

This is the first complete description of the physiological action of the Lymph Compound which has been published in the literature of this therapy. For nearly two years the writer has been endeavoring to prove by animal experimentation each feature of the physiological action of the Lymph Compound, and to strengthen the experimental results by authentic, classified clinical data. The previous publications of the physiologic effects of this therapy have been fragmentary, and, because the laboratory investigations have only recently been carried to the point which justify nearly complete scientific determinations, the previous conclusions announced in our literature have been largely derived from clinical observations. It is also true that certain remedial effects of this remedy cannot be proven by laboratory methods. On the other hand, several actions of the Lymph which could be proven by animal experiment have not yet been completely established.

Because of the inconclusive character of some of our laboratory studies, and because many of the well proven actions of the therapy may appear questionable in view of their unusual character, we shall therefore depart from the usual method of demonstrating a remedy's physiological action, in that certain statements properly belonging to the subject of therapeutics will be used to strengthen or explain certain theories of physiological reactions.

GENERAL ACTION ON CELL METABOLISM AND OTHER CELL FUNCTIONS.

TONIC—NUTRITIVE—ALTERATIVE.

The Lymph Compound acts as a tonic to the nutritional function of cells, increasing degree of activity of and proper relationship between the vital cell processes which accomplish changes in the inherent condition of cells, constructive and destructive; it also furnishes cells with concentrated albuminous pabulum easily assimilated. Because of action on cell functions and protoplasm, the agent increases cell resistance and attraction. Its action on cell nutrition gives it the property of an alterative. Its action, therefore, is cell tonic-nutritive and alterative. That the remedy is a *complete* cell tonic, i. e., tonic to the functions of sensibility and motion, as well as nutrition, is indicated, not proven, by an analysis of clinical results. We only attempt positively to prove that it is a tonic to the nutritional function.

Proof: We shall only report the substance of proof, as details have been published repeatedly in Journal of Am. A. T. Ass'n and other literature. Limitations of this cell action, as well as of the other physiological effects described later, will be given under "Therapeutics." Its alterative action is discussed under the heading "Alterative," a subject to which the reader should give close attention.

1. Clinical results alone would give sufficient evidence. Only by a tonic (not stimulant) effect, of unusual degree, upon intrinsic cell metabolism (aided, of course, by compensatory efficiency of extrinsic processes, viz., adequate quantity and quality of nutrition supplied and waste excreted) can we explain the many decided and unusual objective results, a large majority having proven permanent, and the accomplishment of which can be verified in several thousand well authenticated cases of chronic textural diseases. For example, such results as the reduction or absolute removal of bony overgrowths and various hyperplasias; nutritional impairment of skin lessened or restored to nor-

mal, impaired nutrition being manifested by imperfect exfoliation, loss of elasticity, faulty color and lowered temperature; removal or lessening of fibrous adhesions, especially of joints and periarticular structures; permanent removal of or decided improvement in objective symptoms of organic disease, especially degenerations and certain inflammatory results; unusually favorable results in advanced nutritional diseases, such as marasmus, malnutrition incident to digestive diseases, secondary anemia and similar nutritive disorders, and the decided degree of cellular betterment in many cases of senescence—results which frequently are the equivalent of nearly complete regeneration.

It is the degree, character and permanence of the clinical accomplishments of this remedy which we offer as primary proofs. A more exhaustive analysis and recitation of clinical data will be found in other literature.

2. *Animal Experiments:* For details see first two numbers of New Animal Therapy Journal. Since the first animal experiments were made, subsequent investigation of a similar character has proven corroborative, although results were not always equally successful. In substance, lower animals treated with the Lymph Compound were increased in weight, strength, agility, and comparative post-mortem examinations revealed marked textural effects of a cell tonic-nutritive agent. Such experiments prove that the Lymph Compound is a tonic, at least to the nutritional function of cells, nutritional improvement being most decided in bones, muscles, heart and large blood vessels degenerated by senile changes. Old dogs of known age are the best subjects for this study. (Histological as well as general external changes recently produced in animals will be exhibited at the next Association meeting.)

3. We are justified in assuming that the Lymph Compound furnishes cells with a certain amount of nutritive elements, proteid in character, because of the chemistry of the preparation, and the analysis of the character of numerous results obtained, especially when, as in certain clinical cases, the meager quantity of food assimilated and the nutritive principles furnished by other natural sources were

not sufficient to explain the marked increase in weight and textural perfectness accomplished under the use of the Lymph alone. When a patient is taking nourishment wholly inadequate in quantity or in proper proportions of food-stuffs for the demands of normal metabolism, *plus* the demands of unusual reconstruction, a tonic to cell functions can accomplish little tissue production unless in addition to this action the remedy furnishes concentrated pabulum ready for assimilation by cells.

4. As a further evidence of its cell action we may cite the general improvement so commonly observed from the use of the Lymph Compound in a patient's appearance, agility, endurance, development, bodily weight and functional activity. Increase of weight, during treatment, is often not so marked a result as improvement in the other conditions named.

5. The fact that metabolic changes in the body cells are more active during the use of the Lymph Compound is quite conclusively evidenced by the increased elimination of nitrogenous substances uniformly observed during the treatment of diseases represented by faulty metabolism or its effects in protoplasmic degeneration or infiltration. Increased metabolic changes are evidenced in such diseases, not only by an early increase of urea in urine—the true exponent of nitrogenous waste—but also by the changes in respiratory quotient. That the amount of carbon dioxid eliminated by lungs is increased when this agent is used is being studied by Dr. Forline and myself in cases of senility. Decreased elimination of CO₂ being an incident of senile decay, this condition offers a good opportunity to study this effect of the remedy. Patients are tested by spirometer cylinder before and during active treatment, the conditions for both tests being as exactly similar as possible, i. e., time of test in relation to taking of food, quantity and quality of food, muscular exercise, freedom from fatigue, etc. Results, while incomplete, clearly show a degree of increase of CO₂ exhaled after cell action of Lymph is well inaugurated, such action evidenced during the first month by changes in skin, blood, urine and general nutrition. Later in treat-

ment this increase of CO₂ and urea usually disappears. [Tabulated results will be published in Bulletins.]

SPECIAL ACTION ON VARIOUS APPARATUSES OR FUNCTIONS.

Although most of the local physiological effects of the Lymph Compound are explained by its cell action, and thus are not usually apparent until the remedy has been used a sufficient length of time, we shall, for purposes of completeness and clearness, enumerate these later effects in connection with the following description of those actions of the remedy of more immediate occurrence which are wholly or partly explained by effects other than those described under general metabolic action.

CIRCULATORY APPARATUS.

Heart: In full medicinal doses the Lymph Compound increases the strength of the heart beat and slightly increases the rate. Clinical proof abundant. Physiological: That the strength of the heart beat is increased by action of Lymph Compound on intra-cardiac nerve mechanism is shown by the fact that injections of the remedy increase blood pressure in aorta over previous pressure in manometer, after section of animal's extra cardiac nerve supply. The slightly increased rate of heart could not explain degree of increased blood pressure. Also an excised heart will beat much more forcefully, with slightly increased rate, after Lymph Compound is injected in muscle of apex, immediately after excision. The increase of rate is very slight, except when very large doses are exhibited, and is due to action on intrinsic nerve supply. Blood pressure is only moderately increased because the increased heart's action is nearly compensated by the tonic dilatation of peripheral blood vessels (*v. i.*)

Blood Vessels: The heart's function is still further aided and peripheral circulation improved by the *tonic dilatation* of peripheral blood vessels, caused by full medicinal doses. Usually this effect is not obtained until after several doses

have been given. The clinical proof of this valuable action of Lymph Compound is abundant. The comparatively rapid results almost always obtained in cardiac exhaustion cannot be explained by the somewhat moderate tonic action of Lymph Compound on heart muscle and independent ganglia, nor by its cell action, although this latter action largely accounts for ultimate permanent results. Still more conclusive proof is evidenced by the rapid improvement usually noted in the circulation of patients known to have contracted or atonically dilated blood vessels, and especially in the asthenic stages of pneumonia, typhoid and tuberculosis—conditions in which the toxins of infecting organisms have been shown to cause contraction or atonic relaxation of peripheral blood vessels by action on vaso-motor center. Furthermore, if two frogs be chloralized, a few drops of Lymph injected in the body of one, and the lower end of a leg of each amputated, the hemorrhage from treated frog's leg will be appreciably more rapid than that from the simply chloralized frog. This experiment supports the above theory, although in itself inconclusive. That this action of the Lymph Compound is of unusual therapeutic value needs no discussion, yet in acute infectious diseases the same results may be sufficiently obtained from the proper use of hydrotherapy.

Large Doses: When very large doses—more than maximum medicinal—are injected, or when full medicinal doses are used in usually susceptible patients, the Lymph Compound will produce decidedly increased force and moderately increased rate of the heart, with marked rise of blood pressure because of above, and also because such doses cause a contraction of the blood vessels due to marked stimulation of vaso-motor center in medulla. In still larger doses or when maximum medicinal doses are given a patient possessed of unusual idiosyncrasy, the blood pressure will fall, be unaffected or be only slightly increased, because of the dilatation of blood vessels, due to overstimulation of center, having a greater depressing effect on blood pressure than the opposite effect of increased heart strength and rate.

Later Effects: Those due to cell tonic action of Lymph

Compound, aided by the above described action on heart and blood vessels. It is worthy of emphatic mention that the cell action of Lymph is unusually efficient in mural degeneration, dilatation or malnutrition. This unusual value may be explained in part by the tonic effect of the Lymph on the peripheral coronary vessels. This improvement of intracardiac circulation is analogous to the effect of digitalis, although the action of Lymph Compound is different. Digitalis improves cardiac circulation by prolonging diastole and increasing systole, thus allowing coronary vessels to fill and contract better. Less than 10 per cent of cases of chronic cardiac incompetency have failed to be unusually benefited by the Lymph Compound when given at least forty days, twice a day. It is safe to state—from incomplete reports—that over three-fourths of these benefited cases have not relapsed. This elective affinity—if such a term may be used—of the Lymph Compound has been very frequently observed in primary and secondary dilatation, especially when due to valvular disease, fatty degeneration and the degeneration associated with arterial sclerosis.

No dependable data are available regarding cardiac neuroses, except as regards the functional heart symptoms common to the general nerve atonicity of nerve exhaustion. In this condition many excellent and permanent results are reported—as well as a smaller number of very complete failures.

Recapitulation: The action of this agent on cardiovascular system is therefore fourfold: (1) It increases strength and, slightly, rate of heart; (2) it causes a tonic dilatation of peripheral blood vessels (including the coronary); (3) its continued use increases the activity of metabolic processes in cells of heart's structure and furnishes nutrition to these cells; (4) it only slightly increases blood pressure because of its peripheral tonic-dilatation effect nearly compensating its cardiac action. The exceptional value in mural degeneration is probably due to tonic action on coronary vessels and intrinsic nerve mechanism, as well as its cell tonic-nutritive properties, plus tonic dilatation of

other peripheral vessels—the two latter effects being common to all structures.

NERVOUS SYSTEM.

Immediate effects can rarely be differentiated except from doses somewhat larger than usual medicinal doses or from medicinal doses in patients unusually susceptible. Under the above conditions the effects of a general brain tonic have been observed, noticeable chiefly in clearness of thought and concentration. Frequently reflexes, superficial and deep, are appreciably increased and less often hyperesthesia is noted. That the Lymph Compound is an *excito-motor* of a somewhat unusual type is proven in small animals from use of extremely large doses. In a frog large doses produce a convulsion tonic in type and of mild degree. The convulsion occurs, although much less decided, when heart is ligated and Lymph injected in dorsal lymph sac. The same or even a smaller dose will produce a much more marked convulsion when heart is not ligated. Its action is probably upon both brain and peripheral nerves as well as upon cord. This action of the Lymph is therefore comparable to other medicinal excito-motors only in the tonic character of convulsion.

Vasomotor phenomena, either pallor or flushing, are not common except in susceptible patients. Occasionally an increased acuteness of special sense nerves, notably optic and auditory, is observed. The Lymph Compound has no analgesic properties. When, under its administration, pain or nerve irritability disappears, the result is obtained by removal of cause, not by sedation. The action of Lymph on sensory nerves is the opposite of sedative. Hyperesthesia and increased reflex action are produced in a frog by 15 to 20 minims injected in hips.

Later Effects: One of the earlier actions of Lymph—often during first week—is a betterment of sleep, this early result being attainable only in insomnia due to congestion. Action of the Lymph Compound on peripheral blood vessels explains this effect. Insomnia due to cerebral anemia or other causes removable by physiological action of Lymph

is very commonly lessened or cured by a more protracted use. The Lymph Compound is truly a stimulant hypnotic—it has no sedative properties.

Cerebration, especially the functions of thought, perspicuity, concentration and memory, if improved immediately or during the first week, is improved by a betterment of cerebral circulation. Almost invariably the cell action of the remedy is very decidedly and permanently beneficial to brain functions so soon as sufficient and proper use has affected a response in the highly vitalized and functionized cells of cerebrum. Pre-existing anemia or endarteritis would naturally delay this response. In addition to cell tonic action, the permanent betterment of peripheral circulation, when previously at fault, assists in explaining the value of the Lymph Compound in impaired mentality.

The fact that the Lymph Compound is an excito-motor, though of a very mild degree, is proven physiologically as well as clinically, and the same proofs indicate that this action is upon brain, cord and peripheral nerves. This effect is far too mild to explain the permanency and completeness of results in organic nervous diseases which might be benefited by an excito-motor. In fact, even were the remedy the most active excito-motor known this action alone would not account for more than a small fraction of the lasting benefits observed in the objective symptoms of a single disease of this class. It is to the tonic-nutritive effect of the agent upon the highly differentiated cells composing the texture of the nervous system that we must look for explanation.

The hypothesis is undoubtedly legitimate that a cell tonic should manifest its effect more decidedly upon the more highly functionized or differentiated cells of the body, because (fortunately) these cells are more responsive to stimulation or tonic-nutritive effects in proportion to their powers of attraction, just as (unfortunately) they are more susceptible to degenerative metamorphosis. Physiology teaches that the more highly functionized a cell the less its degree of stability; therefore, cell decomposition is more easily produced. Now, since an agent which increases cell metabolism must

exert its influence upon cell decomposition or catabolism, as well as upon cell reconstruction or anabolism, it seems possible that the instability and increased attraction and functioning of these cells render more decided their response to the cell action of the Lymph when these cells are degenerated or poorly nourished. Although highly specialized cells are more easily degenerated, they are more easily restored by a cell tonic-nutritive agent because metabolic changes in these cells are more easily effected.

Truly the above hypothesis becomes a theory if, with the above reasoning, we accept as proof the results reported from the use of the Lymph Compound. Clinical reports indicate, with a few notable exceptions, that those diseases located in the most highly differentiated or functionized cells respond most completely to this tonic. For example, statistics show that better results are usually obtained in parenchymatous than in interstitial degeneration of a given organ. In senility we know that the retardation of function is manifested in more highly specialized cells earlier than in others, and thus the brain functions are impaired before the digestive functions. All reports show a far more early effect of the Lymph Compound upon the brain than upon the digestive functions. Likewise textural diseases of central nervous system usually yield more rapidly than degeneration of muscles. There are two exceptions to the above statements, namely, degeneration of bone and of heart muscle. Explanation of action of Lymph in heart degeneration has been given.

GENITO-URINARY APPARATUS.

The effects of the Lymph Compound on this apparatus are rarely apparent until the second week—often later.

Kidneys: In certain functional diseases or in organic diseases when the equilibrium of systemic metabolism is normal, the total amount of urine is not appreciably increased. In chronic diseases attended with faulty metabolism the amount of urine is usually increased. Increased elimination of urea and other nitrogenous principles is noted especially in diseases for which a cell tonic

is indicated. The very slight increase of blood pressure could not explain the degree of urinary increase. Furthermore these results are not observed until the remedy has been used one or two weeks. They are chiefly due to the increased cell elimination and general metabolic activity. Also the increased physiological functioning of all body cells by the Lymph Compound partly explains the increased functional activity of kidney parenchyma. As will be explained later, the amount of urea excreted is a reliable guide to dosage of Lymph. In metabolic or degenerative diseases successfully treated, the increased elimination of urea usually ceases after progress is well advanced.

Male Genitals: The Lymph Compound is not an aphrodisiac in the accepted meaning of that word. Its action upon the genitalia is usually not very evident until after third week of treatment; earlier results are probably psychical in a majority of cases. Clinical results prove that the secretive function of testes is permanently improved when previously impaired (not lost) by local or constitutional causes amenable to the action of a powerful cell tonic; such causes as atrophy, degeneration or tuberculosis of testicles and constitutional nutritive disorders. Certain it is that the agent has increased the size and firmness of external genitals in a majority of cases treated, even when size of these structures was apparently normal. Increased tone is frequently, but by no means always, given to a relaxed dartos. It is also true that in many cases of true spermatorrhea accurate investigation has revealed a marked increase in quantity and quality of spermatozoa.

The restoration, partial or complete, of the genital functions in impotency not due to advanced organic centric lesion, deformity or other absolutely irremediable condition, has been obtained in fully 75 per cent of cases reported. It must be admitted that, as in the use of any special treatment, some of these results are psychical, just as many of the cases were undoubtedly psychical. The physicians who can usually recognize psychical impotence, except when there is evidence which positively excludes other causes, are rare, since cases of impotence presenting conclusive affirma-



tive evidence of a psychical cause are very few. However, the reports of symptoms in a majority of cases treated recite as causes of the functional impairment such conditions as seminal vesiculitis with true spermatorrhea, chronic urethritis and excessive and prolonged over-functional activity. Of the 75 per cent of favorable results, relapses, so far as reported, occurred either partially or wholly in about 10 per cent of cases. It is due the Lymph Compound, however, to state that of the relapses reported, at least one-half were caused by patients' refusals to complete treatment or failures to obey injunctions regarding the subsequent avoidance of excesses. In about one-third of cases of impotence due to organic cord diseases (principally advanced tabes) the remedy has decidedly improved this function—a large majority of which results have, so far as known and reported, remained permanent.

Specific and non-specific inflammation of bladder and urethra has yielded to the Lymph Compound more completely than has chronic inflammation of any other mucous membrane. A few well authenticated cases of pyelitis have been treated; nearly all reported greatly benefited, and several—fully one-half—reported cured; these results have proven permanent. Results of this remedy in above conditions are explained by its tonic action on fixed tissue cells and phagocytes, and on peripheral circulation. Tuberculosis of testicles—numerous cases reported cured or materially benefited; thus far only one relapse reported.

Female Genitalia.—Ovaries: The writer is convinced, although unable logically to prove, that in that condition of functional depression called "torpid ovaries," due to chronic metritis, pelvic congestion and nutritional diseases, the Lymph Compound is unusually remedial. For obvious reasons the above statement cannot be scientifically verified until the remedy has been used many more years. The few reports (about 25) received of "successful results in sterility due to ovarian torpidity" are necessarily inconclusive, indicating little until their number has been multiplied many times. The general tonic-nutritive action of the Lymph Compound, its betterment of peripheral circulation

and excito-motor, nerve tonic properties, certainly warrant the conclusion that a restoration of ovarian function should result from its use, when that function is not wholly lost.

Specific and non-specific inflammation of bladder, vagina and uterus have been treated quite extensively, and so far results have been exceptionally beneficial, especially in endometritis and vaginitis. Results in pyosalpinx, although encouraging, justify no definite conclusions.

Disorders of Menstrual Functions: Amenorrhea and dysmenorrhea have been frequently reported as having been controlled by comparatively brief use of the remedy. Unfortunately the causes of these symptoms were not reported in more than one-half of the cases. The physiological action of the Lymph Compound clearly outlines the indications—in the causes of these symptoms—for which it should be used. In congestion of pelvic viscera the action of remedy on peripheral blood vessels, together with cell action render it unusually valuable.

STOMACH AND BOWELS.

A previous publication stating that the Lymph Compound seemed to have an immediate tonic effect upon the secretion of certain digestive juices of stomach needs correction. Because of the general increased functional tone caused by the repeated use of the Lymph Compound, not by any special local action, digestive secretions are somewhat increased when previously diminished, although this effect is by no means marked until late in the treatment of a majority of chronic diseases. Former experiments indicated an early increase of pepsin, but later and more extensive tests proved this conclusion fallacious except in a small minority of cases. The tonic effect of the Lymph Compound is undoubtedly more decided upon the parenchyma of certain glands than others, but not upon the ferment-producing glands of stomach. As a rule, the increased functioning of these glands, as well as those of intestines, is a later result than a similar effect on other glands of a like character. Case reports teach that a dyspepsia due to a chronic catarrh or motor atony (dilatation) is

not materially lessened until the remedy has been used long enough to restore tone and lessen the histolytic changes. Its value, therefore, is curative, not symptomatic.

Conclusive physiological proof is wanting regarding the effect of Lymph Compound on the secretion of bile, pancreatic juice and products of intestinal glands. Theoretically it is rational to assume that this action of the agent upon the structures secreting above fluids is analogous to its action on stomach glands. That the excretion of intestinal juices as well as the motor functions of intestines are increased, is indicated by the results of abundant clinical study of the remedy's action in diseases known to be attended by a deficient secretion of these juices and intestinal atony. In this connection it should be stated that an ample amount of clinical data have been accumulated to indicate that the Lymph Compound has a direct tonic effect upon non-striated muscle fiber in general, in addition to its cell tonic action.

The curative effect of the Lymph Compound on chronic catarrhal inflammation of mucous membranes is well demonstrated in that condition of gastro-intestinal tract, because of the location, extent and greater obstinacy of the inflammation. Complete results in such a lesion very naturally demand protracted use of the remedy, and, in view of its pathology, location and extent, constant attention to rational synergistic treatment, especially lavage, dietetics and general hygiene. Although these and similar synergists must be credited with exerting material influence in the accomplishment of many results attributed to the Lymph Compound, it is absurd to give them further credit, not only because they are frequently not used or improperly applied, but also because of their previous failure in a majority of cases reported, even when assisted by orthodox remedies. Such rational hygienic or non-medicinal aids are and probably always will be essential parts of treatment of such diseases, and their adjuvant value is shown by the fact that a majority of incomplete or negative results reported were—unless due to too brief use of the Lymph Compound—explained by neglect or misuse of these synergists. The beneficial results of the remedy in chronic inflammation and mo-

tor insufficiency of these structures have been largely complete and permanent—better in organic than in long standing functional diseases, and, as above stated, when sufficiently used and assisted.

The preceding statement regarding organic and functional disorders is apparently, though inexplicably, applicable to results in many visceral diseases treated by this remedy. In fact, some physicians insist that their results with the Lymph Compound have been decided, in direct ratio to the severity and degree of textural involvement of diseases treated. This opinion may be true as regards decisive character or degree of results but not as regards completeness.

THE BLOOD.

Sufficiently extended use of the Lymph Compound will increase number of red cells and percentage of hemoglobin in a majority of cases of secondary anemia when the cause of anemia is not irremovable, acute or extremely active, e. g., toxic, parasitic and malignant causes, or recent severe hemorrhage. Rapid and frequently compensatory results are commonly reported in anemia due to malnutrition, hemorrhage, syphilis, rheumatism, digestive diseases and chronic tuberculosis.

Few authentic cases of chlorosis have been treated. Excellent results have been obtained in pernicious anemia—diagnosis justified by examination report—although data are insufficient for conclusions.

White Blood Cells: Clinical observations somewhat contradictory. Certain physicians have observed an immediate increase within an hour of a full sized injection, the increase being moderate in degree and lasting eight to twelve hours. Others report an early increase which is partially permanent in a minority of cases, and others state that the white cells are moderately increased after several weeks' treatment. Our own observations, as well as those of Dr. Hamilton Forline, demonstrate a moderate leucocytosis, sometimes beginning during first week, but usually later, and never immediately following the injection of Lymph. This increase of white cells varies in degree, but is always moderate, chiefly affecting lymphocytes and being most marked in

chronic infectious diseases, especially tuberculosis. This effect of the Lymph Compound is usually temporary, beginning to lessen shortly after the subsidence of the more prominent symptoms in cases successfully treated. In a few cases the increase has been present (wholly or in part) after completion of treatment with curative results.

It may be accepted as a general truth that the Lymph Compound increases the number of white cells to a moderate degree—reaching the maximum about the fortieth day of treatment—in about one-half of all cases, the increase being very constant in most infectious diseases. This effect is undoubtedly the result of the tonic-nutritive improvement of lymphadenoid tissue.

The action of the Lymph Compound upon the phagocytic function of leucocytes may be deduced from clinical results by a process of exclusion, although conclusive physiological proof is necessarily wanting. A discussion of this subject will be found under next heading.

BACTERICIDAL.

Certain critics formerly attempted to dispute the therapeutic value of the Lymph Compound on the ground that its originators' claims were unscientific in that they announced the remedy to be equally useful in chronic degenerative and chronic microbic diseases—arguing that such uses were conflicting. Nothing could better illustrate the strange absurdities to which blind skepticism in therapy may lead than the above contention. Although we never claimed the Lymph Compound to be equally valuable in these two classes of disease, we might justly have done so if we confined the claim to certain chronic degenerative and certain chronic infectious diseases. We submit the following as legitimate proof of the unusually valuable remedial action of the agent in chronic infectious diseases:

First: Fixed tissue cells. It must be admitted that the Lymph Compound has been indisputably established as a tonic to the nutritional function of all fixed cells and that it supplies a concentrated cell food. Also no further proof need be advanced to demonstrate what may be termed a

"former truth," namely, that such an universal cell tonic, nutritive agent must increase the functional and textural perfectness, vital resistance and recuperative properties of fixed tissue cells not absolutely destroyed or completely metamorphosed. Thus its first action in these diseases is upon fixed tissue cells, increasing tone and vitality.

Second: The Lymph Compound increases the phagocytic functions of white blood cells. As above stated, this action of the remedy must be established almost wholly by clinical proof, nevertheless certain physiological data are supportive, viz: (1) The observations of the action of Lymph Compound on number of white cells are, although conflicting, indicative that an increase of these cells does take place whether early or late. (2) The above fact, together with the well-known action of nuclein and spermin, both of which are contained in ingredients of the Lymph Compound and liberated in a nascent state, certainly strengthen the conclusion drawn from many clinical results that the remedy exerts a tonic influence upon the phagocytic function of certain colorless corpuscles. (3) It is also logical to assume that an agent which increases general cell functioning should include in this action the most powerful function of certain white cells.

Clinically. The fact that the action of the remedy upon fixed tissue cells is assisted in chronic microbic diseases by its tonic effect upon phagocytes is evidenced by the results in chronic gonorrhreal urethritis, cystitis and rheumatism, syphilis, chronic tuberculosis and various pyogenic inflammations—results too decided and complete, in fact too unusual, to be explained by the remedy's action on fixed tissue cells alone. Increased resistance, nutrition and functioning of fixed tissue cells might explain results if those results were only the arrest of progress or partial removal of histologic effects of microbes. It is a fact, however, that so far the curative results in tuberculosis, for example, have been unusually marked, or, to say the least, better than results honestly claimed for any other established line of treatment; and the same completely curative results—although fewer

cases have been treated—are recorded in the other chronic infections named above.

Third: The Lymph Compound decidedly improves general and especially peripheral circulation (see cardiovascular action). We can exclude any direct antitoxic or anti-septic action of the Lymph Compound by recalling its formula. Therefore exclusion and the three propositions above demonstrated constitute sufficient scientific evidence to establish this threefold action of Lymph Compound in microbial diseases.

It is to such a remedy—one which will increase functional activity both of cells attacked and cells defending—that we must look for the successful treatment of the disastrous and obstinate chronic lesions caused by such infecting organisms as tubercle bacilli, gonococci and pyogenic microbes. No doubt the class of remedies beginning with nuclein and ending with the Lymph represents only a beginning in the right direction, yet a beginning, the results of which have positively earned generous recognition and unstinted praise.

As still further proof of the above statement, the observations of M. Edmond Vidal, made in his recent review of the many sera which have been used as antitoxins, are strikingly conclusive. He states, in substance (*Progres Medical*, April 13, 1901), that with the exception of diphtheria antitoxin, no serum has yet shown results which justify affirmative conclusions regarding its therapeutical value; that these "antitoxic" sera do not act upon the germ nor its toxin, *but upon the cells of the organism which must contend with the bacteria*; that therefore these sera have no specific action but a *cell tonic* action. The cells of the organism which must contend with bacteria are the fixed tissue cells and phagocytes.

The normal blood sera of certain animals have, by competent physiologists, been shown to accomplish results in certain infectious diseases identical with those of the sera of the same animal immunized by inoculation, if the normal sera are taken from animals possessing naturally a high degree of immunity from the diseases for which the sera are used.

The blood serum of goats used as a menstruum for the Lymph Compound may possess cell tonic properties, but of a degree not to be compared with that of the active principles in lymph, orchitic fluid, and fluid extracts of the organs which generate the motile cells in these fluids.

ALTERATIVE ACTION.

In view of what has been demonstrated regarding the tonic action of the Lymph Compound especially upon intrinsic cell processes of metabolism, very little is needed besides clinical proof to establish its alterative properties. In fact, clinical data offer the only possible demonstration of the existence of this action in any agent, since an alterative is an agent which, in an unknown way, alters the inherent processes of cell nutrition sufficiently to restore the normal functions of organs or structures. Indications for an alterative exist when certain morbid causes have impaired the elemental processes of a cell which constitute its nutritional function—these processes being assimilation, disassimilation and elimination. Assimilation and elimination are more often at fault. Although there may be uncertainty regarding a few physiological actions of the Lymph Compound, there can be no theoretical or practical grounds for questioning its tonic action upon the above function, or, therefore, its therapeutic possibilities as an alterative. Diseases and conditions, the clinical course and treatment of which gave origin to the term alterative, have nearly all been treated by the Lymph a sufficient number of times amply to establish the fact that the Lymph Compound is not only an alterative, but also an exceptionally efficient alterative.

Not that the remedy has proven infallible or even equally valuable in all diseases of this class, or that we are justified in ranking the alterative effect of this agent ahead of one or two orthodox alteratives in the disease or diseases for which the latter are used. We can assert, however, and abundantly prove the verity of the assertion, that a majority of cases of this class which the Lymph Compound has treated more or less successfully have been previously treated with negative results by the usual therapeutic agents.

Two diseases, syphilis and diabetes mellitus, deserve separate mention, and very properly after the above discussion, since the indications presented by these diseases are chiefly met by the remedy's alterative effects.

Syphilis: Indications point toward unusual remedial qualities for this agent in tertiary syphilis. Clinical tests have been numerous and fully justify statements made under "Therapeutics of Lymph Compound." Its action is not that of a direct antagonist to syphilitic virus, but is twofold, viz.: (1) Action upon the functional cellular effects of disease—that of an alterative, correcting nutritional defects. (2) Action upon textural lesions—that of a cell tonic and nutritive, increasing cell resistance, reconstruction and elimination.

Diabetes Mellitus: Beneficial results numerous, and explained, at least in part, by the correction of the impaired cell assimilation of this disease, notably in liver, by the well proven tonic-alterative action of the remedy. Diabetes without organic disease of pancreas, liver or lungs offers the most favorable condition for complete results.

THE SKIN.

The effect of the Lymph Compound on structure of skin is very interesting. By analogy and clinical results we assume that this agent increases secretion of sweat; quality or quantity of eliminated products (by sweat) not yet estimated. For therapeutical purposes it is safer to consider that the increase of this output is inconstant and the degree of elimination inadequate, especially in the treatment of diseases requiring active elimination.

The hyperidrosis of debilitating diseases, such as severe nerve exhaustion, tuberculosis and other chronic diseases attended with malnutrition, is almost invariably controlled early in the use of the Lymph Compound.

The action of the remedy on textural imperfections of skin, although a part of the general tonic-nutritive effects, is well worthy separate description. This action is best studied by observing the ultimate effects of the remedy upon the skin changes of presenility. In this condition the glancing

of skin due to degeneration of sebaceous glands, the relaxation from imperfect elasticity and nutrition, and the common venous ectasia, are conditions materially lessened and in part removed by sufficiently extended use of this cell tonic. Similar benefit is obtained in other skin imperfections due to nerve degeneration or nutritional changes; especially noted in the rough epidermis from faulty cell changes, and in such common conditions as pallid, inelastic, putty-like skin, imperfect hair production, sluggish superficial circulation and diminished peripheral sensibility. By closely watching the skin changes, you have an excellent affirmative guide to the general nutritional improvement effected by the Lymph.

RECAPITULATION OF PHYSIOLOGICAL ACTION.

Cells—Nutritional Functions: A tonic of unusual efficiency to the intrinsic nutritional processes of fixed tissue cells.—Positively proven physiologically and clinically.

2. *Cells—Other Functions:* A tonic to the two remaining functions of fixed tissue cells (sensibility and motion).—Indicated, not positively proven, by clinical results —physiological proof incomplete.

3. *Cells—Nutrition of:* Furnishes some degree of pabulum to all cells.—Proven clinically by exclusion.

4. *Cardiovascular.*—Heart: Increases strength and slightly the rate; action on intracardiac nerve mechanism.—Positive physiological and clinical proof. Blood pressure very slightly increased. Blood Vessels: (1) Increases perfectness of circulatory balance and assists heart's action by producing a tonic dilatation of peripheral blood vessels.—Clinical proof abundant; physiological proof incomplete, but strongly supportive. (2) In unusually susceptible patients or when very large doses (larger than maximum) are given, the Lymph Compound more decidedly increases blood pressure because of marked increase of strength and moderate increase of rate of heart, together with contraction of peripheral blood vessels.—Positive physiological and clinical proof.



Later Effects. Chiefly because of cell tonic action and partly because of betterment of coronary and general peripheral circulation, the Lymph Compound is unusually efficient in lessening or correcting mural degeneration or malnutrition and resultant dilatation.—Abundant clinical proof; also indicated by animal experiments.

No exceptional remedial value demonstrated in cardiac neuroses except in the general faulty innervation incident to severe nerve exhaustion.

5. *Nervous System:* No immediate effects from medicinal doses except in unusually susceptible patients. (1) A mild excito-motor; reflex action and sensibility increased.—Positive physiological and clinical proof. The effects produced by action on cord, brain, and peripheral nerves.—Indicated by physiological experiment cited. (2) A very efficient tonic to cerebral functions, and a stimulant hypnotic in congestive type of insomnia—both are early effects.—Abundant clinical proof. (3) In unusually responsive patients cerebration and functions of certain special senses are rendered more acute as an immediate effect. (4) Chiefly because of cell tonic-nutritive action, partly because of its mild excito-motor action and peripheral blood vessel effect, its remedial value in degeneration of central nervous system is comparable in efficiency to that described in certain mural heart lesions.—This unusual, though limited, property proven by extensive clinical data. (5) In the circulatory diseases of central nervous system it is most useful in passive hyperemia or congestion.—Shown by physiological action.

6. *Kidneys:* Total amount and solids of urine increased after two or more week's treatment owing to slightly increased blood pressure and tonic effect of Lymph on cells of parenchyma of glomeruli and tubules. Increased nitrogenous (urea) output due to increased activity of cell changes. Above effects proven clinically; explanation of same purely theoretical but unquestionably accurate. That the nitrogenous elements of urine are increased in certain metabolic disorders and results (degeneration) during the first half of treatment with the Lymph Compound is an important proof

of the remedy's cell action and a guide to the determination of its dosage.

7. *Genital Organs: Male.* All effects gradually produced. If immediate functional increase occurs the result should be considered as a stimulating effect due to unusual susceptibility, or as a psychical influence. (1) Functions of, increased by the cell tonic-nutritive effect of Lymph Compound, when functions are impaired by local or constitutional causes amenable to this remedy.—Positively proven in true spermatorrhea with seminal vesiculitis; this condition having been successfully treated in sufficient number of cases, the results well exemplify tonic action of remedy on both genital functions. Explained by action of remedy on cord, peripheral nerves, cells and circulation. (2) Texture of usually improved, especially marked in testes. Explained by cell action.—Abundantly proven clinically. Female: (1) Ovaries, function of improved, when impaired by certain causes. Indicated by analogy and clinical results—no positive proof. (2) Specific and non-specific inflammation of uro-genital canals very decidedly benefited, yielding more completely and rapidly than similar pathology of other mucous membranes. Explained by tonic action on fixed tissue cells and phagocytes plus improved capillary circulation.—Abundantly proven clinically. (3) The same action explains value of agent in chronic congestion and inflammation of pelvic structures. Clinical proof conclusive. (4) Menstrual disorders, amenorrhea and dysmenorrhea—remedy indicated by physiological action and clinical results.

8. *Stomach and Bowels:* Stomach: Increases secretion of all digestive juices, as a late result.—Accurate tests prove. Intestines: Similar effect indicated, not proven, by clinical results. Chronic neuro-muscular atony and catarrhal inflammation of stomach and bowels benefited and often cured by persistent use of Lymph Compound and proper adjuvants. Results usually more complete in diseases of stomach than of bowels, and in organic than in purely functional diseases.—Well proven clinically. Above explained by circulatory, nerve and cell tonic action.

9. *Blood:* (1) Increases red cells and hemoglobin in

certain secondary anemias.—Accurate tests prove—clinical data adequate. (2) Increases number of leucocytes.—Competent tests establish this effect, especially in chronic infectious diseases. (3) Increases phagocytic function of white cells.—Undoubtedly proven by exclusion.

10. *Bactericidal:* An unusually powerful action, directly, by increasing number and functions of phagocytes, indirectly, by increasing tone and resistance of fixed tissue cells and by bettering peripheral circulation.—Action and nature of same proven by sufficient clinical observation.

11. *Alterative:* An efficient alterative action proven as conclusively as the uncertain definition of that action permits.—Clinical proof abundant.

12. *Skin:* (1) Secretion of sweat moderately increased by protracted, consecutive use.—Indicated by clinical observation. (2) Cell tonic-nutritive action unusually marked in skin; most rapid in degenerative changes of pre-senility.—Abundant clinical proof.

CHAPTER IV.

Therapeutics.

This subject not having been completely considered since article in June, 1900, Journal of the Am. A. T. Ass'n., the present discussion will contain much new information besides that contained in description of physiological action. Several indications mentioned in previous literature have since proven inaccurate and some additional indications have been discovered. Degrees of value, as indicated by percentages of favorable and negative results, will likewise be found altered in certain diseases. A part of these addenda, subtractions and modifications has already been outlined under physiological action, the discussion of which necessitated constant reference to indications in order to make the definitions of the remedy's action as useful and clear as possible. Because of this, and also the fact that the numerous publications furnish abundant exemplification of the therapeutic indications, the subject of therapeutics will be discussed as concisely and generically as possible, consistent with completeness.

Here again, because of the unusual character of some of the statements made, as well as a desire to be practical, the writer deviates from customary methods by following many of the indication explanations with an outline of limitations.

Appreciating the tendency of the supporter of a new therapeutic agent to allow enthusiasm to influence his opinion of the scope of that agent's remedial value, the writer will discuss the therapeutics of this remedy in a conserva-

tive manner, and endeavor to correct errors made in the uses of the Lymph Compound during the initial period of its existence.

GENERAL INDICATIONS.

There are really only two general indications for the Lymph Compound, viz.: (1) Chronic diseases represented by faulty metabolism, or by functional and textural effects due to imperfect cell functioning. In other words, chronic functional diseases, and chronic diseases characterized by protoplasmic changes, particularly degeneration, tissue overgrowths, fatty infiltration and certain atrophies. (2) Chronic infectious diseases of certain types. Indicated in the first class because of remedy's cell tonic-nutritive, alterative properties, aided by its action on circulatory and nervous systems; in the last because of the same properties plus its phagocytic action. For purposes of convenience we shall subdivide these general indications sufficiently to permit more useful discussion.

NUTRITIONAL DISEASES.

Those primary or secondary cell conditions represented by an impairment of the processes within cells which constitute their common function of nutrition, or by impaired nutrition of cell protoplasm; these results being caused by faulty or insufficient quality or quantity of elements assimilated, or by faulty oxidation or systemic elimination. To these causes we must add cell intoxication from internal or external sources. In order to establish a line between nutritional disorders and degenerative diseases, we include in this class only those morbid processes affecting cell metabolism which are not represented by advanced structural changes, being wholly or largely functional. Many diseases which are properly nutritional in character are usually classed under degenerative diseases.

Examples: Under "examples"—here and elsewhere—we shall mention only those diseases for the treatment of which the Lymph Compound has been sufficiently used to

prove that it possesses superior remedial value. Marasmus, secondary anemia, obesity, gout and diabetes mellitus. Excepting diabetes, results in these diseases have been decidedly beneficial or curative in fully two-thirds of all cases treated, the remaining results being about equally divided between negative and moderately beneficial results.

Diabetes Mellitus: Percentage of positive cures comparatively small except when patients were adults and disease not seriously complicated (organic disease of pancreas, lungs, liver or kidneys) or of unusually severe type. A conservative estimate of results in all cases treated—a majority of which were well advanced—allowing for errors in diagnosis, would place the complete cures at about 25 per cent; very marked improvement, glycosuria reported absent, 30 per cent, and the remaining results nearly equally divided between removal of a majority of symptoms except glycosuria, moderate improvement, and nearly complete negative results.

Limitations: Theoretically this cell tonic cannot restore cells sufficiently damaged by malnutrition so as permanently to abolish their reactive power, or to reduce to zero their coefficient of vital resistance. Clinically the possibilities of results are limited to prolongation of life and partial restoration of nutrition, when the effects of malnutrition itself have wholly destroyed vital functions, or, in other words, an area of cellular involvement sufficient permanently to abolish the functions of a given structure or structures. These limitations apply more to the next class of diseases than to the above.

DISEASES OF DEGENERATION OR INFILTRATION.

As above stated, the dividing line between this class of diseases and strictly nutritional diseases cannot closely be drawn. The latter frequently terminates in the former, either partly or wholly. We therefore define diseases of this class to be those represented by sufficient structural metamorphosis or infiltration to be recognized by physical findings as a distinct textural disease.

Explanatory: To comprehend the indications for and

limitations of this remedy, as applied to this class of diseases, we must recall the pathogenesis of degeneration. Usually the first step is purely functional—always so in degeneration of senescence—beginning with some fault in the processes of the function of nutrition, usually faulty assimilation or insufficient elimination of the products of cell decomposition. So soon as the activity of cell elimination is diminished out of proportion to the activity of functions producing waste elements, or when decomposition products are not eliminated after oxidation, a residue accumulates and thus the inception of an infiltration or degeneration. This cumulation of elements foreign to the natural structure of cells may be the ultimate result of the various causes enumerated under nutritive disorders. It is the occurrence in the cells of an unnatural residue, whether resulting from faulty oxidation, anabolism or catabolism, which determines degeneration, and the active cause may be intrinsic or extrinsic. A diet excessive in proteids or other foodstuffs, or intoxication from drugs, tobacco, alcohol or faulty digestion, are examples of causes of degeneration from sources outside of cells. The cloudy swelling and fatty degeneration of continued fever exemplify an acute degeneration. Theoretically this cell tonic is indicated in the degeneration of acute fevers, but not during the height of the toxic paroxysm or when temperature is unusually high, as such conditions are partially destructive to the active principles of the remedy.

It is in chronic degeneration that, as has been positively proven, the Lymph Compound is clearly indicated. No matter what may be the source or primary cause, whether intrinsic or extrinsic, of cell degeneration the first step in its production is a functional alteration, then a beginning cumulation of elements which should be eliminated, then a partial alteration of protoplasm and finally complete metamorphosis and death, with replacement of cells by foreign elements. Until the last step is reached an active cell tonic-nutritive agent has remedial possibilities. Such an agent is the Lymph Compound. It has no direct action on cell protoplasm, its ingredients do not immediately replace or mend

defective structure, but because of the active principles or internal secretions of the highest types of cell life which it contains, it is able to do two things for all cells, viz., furnish them a concentrated pabulum ready for assimilation, and to increase the activity of or restore a normal relation between their vital functions, especially the processes comprising cell nutrition.

Because of this dual action it is apparent that the remedial possibilities of this agent, when used in this class of diseases, are unusually extensive, though necessarily limited in degree. In advanced lesions of nearly all of the diseases named below, the most that can be expected—and that is a great deal—from this agent is arrest of progress, partial or complete restoration of cells texurally impaired, but not actually destroyed or non-responsive, and an increase of functional tone and vital resistance of unchanged cells. Fortunately in a great majority of diseases of this class all the steps incident to pathogenesis of degeneration are present in a given lesion, and it is only when the last step is reached that the Lymph Compound is no longer directly remedial, although it often proves compensatory. Even if, in a given organic disease of this type, the area involved be completely metamorphosed, this tonic-nutritive and alterative agent has still an opportunity for accomplishing good. By increasing perfectness of general cell metabolism and nutrition it arrests further progress of cell destruction, increases functional tone of unchanged cells in the organ involved, increases longevity by adding to the coefficient of vital cell resistance, the lowering of which determines senescence; and thus its remedial possibilities may prove compensatory to a lesion beyond its curative capabilities.

Examples: (Named in order of frequency of treatment with Lymph Compound.) Tabes, chronic articular rheumatism, arterial sclerosis, organic heart diseases, parenchymatous and interstitial nephritis, pre-senility, arthritis deformans, neuritis, optic atrophy, multiple neuritis, primary spastic paraplegia, dilatation of stomach, hemiplegia, senile prostatitis and ataxic paraplegia. Percentages previously published of results in these diseases need correction

approximately as follows: Excepting interstitial nephritis and gastrectasia, percentages of beneficial results have moderately increased, especially in hemiplegia, arterial sclerosis, optic atrophy, organic cord diseases and arthritic rheumatism. Failures to accomplish the following result in cardiac exhaustion due to mural degeneration, valve disease or arterial sclerosis are rare:—complete and permanent restoration of heart competency and arterio-venous balance. In the two diseases excepted, further reports lower percentage of curative results to a moderate degree. Addenda.—The following diseases have yielded sufficiently to indicate, not prove, exceptional response to this remedy: general paralysis of insane in early stages, atrophic and hypertrophic hepato-cirrhosis, and infantile paralysis in late stages.

Limitations: Clinically the Lymph Compound has thus far failed to manifest any unusual value in myelitis, abscess of liver, Hodgkin's disease, leukemia, and general paralysis of insane in advanced stages. Further limitations in this class of diseases will be announced so soon as a sufficient number of failures are reported in other diseases not herein named. The theoretical limitations are apparent from above statements. Physiologically the limitations to the action of the Lymph Compound in degenerative diseases are three, viz.: (1) Death or metamorphosis of cells sufficiently great to destroy the function or functions of a given organ or structure. (2) Diminution of general cell tone or functioning sufficient to prevent response to a cell tonic. (3) Idiosyncrasy. About one-half of one per cent of patients treated have evidenced a degree of susceptibility to the Lymph Compound sufficient to prevent its use in necessary doses.

Many instances are known of physicians having mistaken for idiosyncrasy the symptoms produced by use of this cell tonic when patients were not eliminating adequately, were not furnishing cells with proper nutrition, or were interfering with normal relations or activity of metabolic processes by repeated fatigue, use of stimulants or of certain drugs, etc. Similar symptoms result from the excitation

with the Lymph of greater cell activity than can be accommodated by oxidation or elimination. Usually more than one of the above obstructive influences are needed to produce the unpleasant reaction we should expect from attempts to increase cell functions without proper attention to elements furnished to and taken from cell metabolism.

ATROPHIC DISEASES.

The tonic-nutritive cell action of the Lymph Compound renders it a superior remedy in the treatment of secondary atrophy due to nutritional diseases, peripheral neuritis, and atrophy from disuse or from excessive functional activity. Atrophy from centric lesions has not been sufficiently treated to justify conclusions. It would seem, however, that a very prolonged use of the Lymph Compound would lessen this symptom when degeneration of cells of anterior cornua or pyramidal tracts (progressive muscular atrophy) was not too advanced or extensive. Clinical results in progressive muscular atrophy have thus far been largely negative, although some exceptionally favorable results have been reported. Other cases are being treated in the hope that longer treatment may accomplish more results. No reliable data regarding pseudo-hypertrophic muscular paralysis or idiopathic muscular atrophy. The atrophy of infantile paralysis has been decidedly lessened in most of the few cases reported.

FUNCTIONAL DISEASES.

Those functional diseases of obscure origin or character have, with a few marked exceptions, failed to respond satisfactorily. Sufficient clinical data collected to justify following conclusions:

1. *Cardiac Neuroses*: No exceptional value yet established except in neurotic heart of general nerve exhaustion, malnutrition, hysteria and neurasthenia, and from a few of the reflex causes which yield to the remedy, e. g., chronic gastritis and gastrectasia.

2. *Stomach*: Atonic dyspepsia and gastralgia. Ap-

parently very valuable in latter and, to a less degree, in former disease.

3. *Nervous System*: (1) Nerve exhaustion. High percentage of completely curative results in large number of cases treated—majority of unusually severe types.

2. *Neuralgia*: Many cases treated, results being largely beneficial or curative when condition associated with constitutional diseases, especially malnutrition, rheumatism and secondary anemia. Types: Best results in sciatic, intercostal and occipital; favorable and negative results about equally divided in tic douloureux.

(3) *Neurasthenia and Hysteria*: Large number cases treated. Results in about four-fifths of cases being about equally divided between complete and nearly complete removal of symptoms. Thus far the chief value of the Lymph Compound over rest cure etc., seems to be in the greater permanency of the results obtained and the general reconstruction effected by the remedy. A majority of the unusually decisive results were obtained in long standing severe cases with marked sensory and vaso-motor symptoms. In hystero-epilepsy results usually beneficial and often curative, but no reliable information as yet regarding permanency.

(4) *Epilepsy*: In certain types of epilepsy the results of extensive use apparently demonstrate marked superiority of Lymph Compound over other therapy. Best results usually obtained in grand mal in patients over 35 or 40, and in all types, except cortical, of children under and during puberty. Results often delayed when patient shows marked symptoms of chronic bromism, or when organic gastro-intestinal disease, with severe flatulence, is present. In all cases physicians should use, as adjuvants, hydrotherapy, especially cold sheet rubs in morning, and endeavor to prevent or actively treat gastric or intestinal indigestion, especially intestinal flatulence and constipation. Cortical or Jacksonian type not frequently treated, and the few favorable results are inconclusive; nature of cortical lesion would determine indications for the Lymph. Such cortical lesions as thrombosis, blood clot and inflammatory softening have been sufficiently lessened or removed by this cell

tonic to prevent paroxysms. Tumor and meningitis or any long standing, extensive brain lesion would probably not be materially lessened by this remedy.

(5) *Functional Tremors*: Senile and alcoholic: Numerous cases treated—results usually beneficial in the former and curative in the latter; no report of permanency. Paralysis agitans: A majority of cases—many treated—moderately benefited or only improved in symptoms other than tremor. A fair-sized minority of results decidedly beneficial, removing part or occasionally all symptoms. Very little chance of cure or marked benefit of very advanced or long-standing cases, except improvement of general nutrition, lessening of propulsion and increased strength, when indications for such results are present.

(6) *Occupation Neuroses*: Writer's cramp: Few cases treated, with more negative than curative results. No other types reported.

(7) *Diabetes Insipidus*: The few cases treated have been, with one exception, materially benefited. Data inconclusive.

(8) *Mental Diseases*: In insanity, wholly or largely functional in character, the results from the use of the Lymph have certainly been more favorable than from other recognized therapy. Such types as melancholia and primary dementia have been positively cured in many instances. The same is true of general paresis in early stages and imbecility of mild degree. Most of the cases have been treated with marked success. Fully three-fourths of the results have thus far been permanent.

CHRONIC INFECTIOUS DISEASES.

Lymph Compound indicated because of its action on fixed tissue cells, phagocytes and cardiovascular apparatus.

1. Chronic tuberculosis of lungs, bone, glands and intestines: In pulmonary type fully three-fourths of all cases benefited. When there were no large cavities, high temperature, averaging over 103.5, extensive consolidation (over half entire lung area) or serious organic complication such as diabetes, a very marked improvement, or a practi-

cally complete cure in a large majority of the many cases treated, has been reported. By "practical cure" is meant cessation of local inflammation with no physical signs or other evidences of activity. In other cases the Lymph Compound is indicated, since with proper use of rational synergists better results have usually been obtained than from orthodox therapy or serum medication. In tuberculosis of bone and glands a good-sized majority of results have been apparently curative—in fact, very few negative results have as yet been reported. Results in cases of intestinal tuberculosis reported are very encouraging, but not sufficiently authenticated or numerous to prove superiority of remedy. Tuberculosis of bladder reported in a few cases as having been cured or greatly improved; only one negative result. Numerous cases of tuberculosis of testicles reported as either greatly improved or cured.

Permanency of all above favorable results cannot, of course, be proven, yet nearly all the later reports received indicate that comparatively few relapses have occurred.

2. Specific and non-specific inflammation of mucous membranes: (1) Chronic urethritis and cystitis, especially gonorrhreal. Many cases treated, with high percentage of completely curative results. Results usually permanent, indicated by incomplete subsequent reports. (2) In chronic seminal vesiculitis and acute or chronic prostatitis excellent results obtained in majority of numerous cases reported. Senile prostatitis discussed under "senility." (3) Chronic vaginitis and endometritis. Not very extensive reports show many nearly complete beneficial results, with a few apparently permanent cures. (4) Chronic gastritis. Many reports; results largely beneficial when Lymph treatment was protracted; fully 60 per cent of cases reported cured. (5) Similar results, though slightly less favorable, in chronic enteritis, especially in chronic intestinal catarrh with diarrhea. (6) Chronic colitis. Numerous cases treated, mostly of common type with extensive ulceration and constitutional depression. Few failures to benefit reported, majority of results being decidedly beneficial, and a minority curative. In the above diseases of gastro-intestinal

mucosa, reported results were far more satisfactory when proper attention was given to diet and, when indicated, lavage and laxatives. (7) Chronic bronchitis. Numerous cases treated with apparently permanent improvement in about one-half of cases. Types of disease and permanency of results not sufficiently reported. As an aid to hygiene, prophylaxis and local inhalation treatment, the Lymph Compound is certainly indicated. (8) Catarrh of upper air passages. Sufficient number of cases treated to indicate that the Lymph Compound is a valuable adjunct (as a cell tonic) to usual local and hygienic treatment.

3. Chronic pyogenic ulceration and abscesses: Numerous complete and rapid favorable results obtained in indolent ulcers, chiefly varicose, tubercular and specific of legs and of mucous openings; also in acute and chronic abscesses as an aid to surgical treatment.

4. Malignant neoplasms: Classed here for convenience. Numerous cases treated, results being negative or temporarily beneficial. A few physicians claim to have obtained marked local and constitutional improvement in carcinoma of breast and lips. Remedy, if indicated at all, should only be used as a preparatory or sequential treatment to surgery, or in cases which cannot be operated upon.

MISCELLANEOUS DISEASES.

Indications for Lymph Compound in the following diseases proven largely by clinical experience, although value often explained by its alterative and cell tonic properties and effects on circulatory apparatus: Asthma, exophthalmic goiter, chronic articular, gonorrhreal and muscular rheumatism, syphilis and certain diseases of pelvic viscera of females. Excepting asthma (about 60 cases treated) and exophthalmic goiter, an unusually large number of cases of above diseases have been treated and adequately reported.

Chronic Articular Rheumatism and Arthritis Deforans: More cases treated than of any chronic disease except tabes. Percentages of results previously reported have been maintained. In moderately severe cases, may

expect decided improvement or complete cure in large majority. In long standing cases with extensive bony overgrowths and fibrous ankylosis, remedy lessens joint and bone lesions nearly to normal in a large minority of cases, and to a degree sufficient to permit much better use of joints in a majority of cases. Results are more complete and rapid when eliminatory organs are kept active, indicated dietetic rules enforced and moderate mechanical manipulation used. Severe anemia and obstinate constipation retard results.

The Lymph Compound is beginning to be used in acute articular rheumatism after severity of acute symptoms have subsided—results, apparently, being very satisfactory.

Gonorrhreal and Chronic Muscular Rheumatism: Remedy less valuable than in chronic articular, though curative in a large minority of cases.

Exophthalmic Goiter: Given in full doses for two, three or four months, the Lymph Compound has accomplished marked permanent improvement in most of the cases treated —numbering about eighty.

Syphilis: Unusually efficient in advanced tertiary cases, especially when disease involves central nervous system. Full doses and protracted use usually necessary. Relative value in secondary syphilis difficult to determine because specifics have been alternated with Lymph Compound in over half the cases. Thus used, or even when used alone, the remedy has very frequently accomplished curative results, previously unobtainable with specific remedies alone. It should not be depended upon alone when secondary symptoms are acutely active or unusually numerous.

Female Diseases: As stated under physiological action, clinical data abundantly prove the unusual value of the Lymph Compound in inflammation of the utero-vaginal tract. Because of the tonic dilatation of peripheral blood vessels caused by this remedy, as well as by its cell action, very favorable results are obtained in congestion of pelvic viscera and metritis. Also valuable in amenorrhea due to anemia or constitutional depression, and in dysmenorrhea of

a congestive type. No data in other menstrual faults, or in benign tumors.

Asthma: A superior remedy as a basis of treatment in asthma due to chronic bronchitis, cardiac insufficiency, renal disease, and blood or nutritional diseases. Also as adjuvant to local, climatic and hygienic treatment of asthma, due to disease or irritation of upper respiratory passages. The writer does not believe in idiopathic asthma. To admit that asthma may be idiopathic is, if not erroneous, at least harmful, in that the treatment of the cause is the important part of the therapy of this disease, and detection of cause is frequently unsuccessful because of the easier solution found in that omnibus term, "idiopathic." Sixty cases (about) reported with very few negative results.

Senility: This subject has been exhaustively discussed in previous publications. It is sufficient to state that results formerly reported have continued, the Lymph Compound by virtue of its cell action being able to accomplish in a majority of cases many or all of the following results: A general increase of the coefficient of vital cell resistance, because of improved cell tone and texture. The remedy's cell tonic-nutritive and alterative action also effects many functional and structural improvements, evidenced by improved mentality; more acute functioning of special senses and of digestive and eliminative organs; increased strength, agility and endurance; better quality of skin; lessening of, or partly compensating for, certain degenerations, especially of arteries and prostate gland. Results of experiments on old animals, previously described, have been confirmed by further study of a similar character. That there is nothing extravagant or unscientific in the above statements is now conclusively demonstrated, and no physician who is well informed in the physiology and histogenesis of old age could honestly deny these claims if he admitted the abundant proof we offer of the cell action of this remedy.

CHAPTER V.

Dosage—Rules Regulating—Symptoms of Faulty Metabolism.

DOSAGE.

Several corrections and additions must be made in previous publications upon this subject. Difference in quantity of ingredients in Lymph Compound and more numerous reports explain the changes in previous instructions.

Adult dose, 5 to 18 minimis, one to three times a day. Less than 6 and more than 15 minim doses rarely used. Average dose, 10 to 12 minimis twice a day. Determine dose for children by usual rule. Definite rules for regulating size and frequency of injections are discussed in printed instructions and the bi-monthly bulletins report any changes or additions which may be necessitated by further observation. In this chapter we shall discuss the general principles regulating size and frequency of dosage and duration of treatment, deducing these principles from the physiological action. This analysis should be closely studied.

GENERAL RULE.

Beginning with 3 to 5 minim doses, twice a day (in most cases), dose is gradually increased to about 10 minimis. Individual idiosyncrasy—found in about one-half per cent of cases—may necessitate doses smaller than 10 minimis, rarely less than 6 minimis. During menstruation: If flow is profuse give one injection a day of half of usual dose, for first two or three days; in other cases give

one dose a day of usual size for first three days. With these exceptions size of dose, that is, less or more than average dose, is *not* regulated by usual rules regarding bodily weight, severity and extent of disease, complications etc., but by the following criteria:

Endeavor to determine the dose which most successfully improves all the processes of cell metabolism. To secure the best possible results from a cell tonic two things are necessary: First, to increase the activity of one or more of the cell processes which maintain normal assimilation, constructive and destructive metabolic changes and elimination, and also to maintain in the cells themselves such a relation of activity between taking in nutritious elements, appropriating these elements, separating waste and eliminating the unused food and elements resulting from cell change, as to determine a definite life cycle. In using a cell-tonic agent we must avoid interfering with the physiologic relationship between anabolism and catabolism, or constructive and destructive metabolism. Second, it is necessary to avoid over, under or improper feeding of cells, and also the excessive formation of the products of cell activity without correspondingly increasing the activity of systemic elimination.

Thus if we attempt to hasten results by use of larger doses alone, we may defeat our purpose or even cause ill effects. When a disease affecting the cellular state of an individual is not responding to the Lymph Compound, we may increase the dose within defined limits, if to such increase the patient manifests no evidences of disturbed metabolism, or non-physiologic action. Therefore, the symptoms of over-dosage indicated by the physiological action of the Lymph Compound—vaso-motor phenomena, tachycardia, peripheral congestion, paresthesia, etc.—are insufficient guides.

Realizing the nature of the action of a cell tonic, the physician who, when using this remedy, most closely studies the evidences of its effect on metabolism will usually obtain the most satisfactory results. Large doses of the Lymph Compound may for a time appear to be accomplishing very decided improvement, and yet ultimately cease to act because the cell tonic action of the Lymph had been out

of proportion to the ability of the system permanently to appropriate the results of anabolism, owing to insufficient catabolic or eliminative activity; or because cell decomposition was out of proportion to cell reconstruction, the oxidation of waste, or systemic elimination. More commonly the fault will be found extrinsic. Thus, the cell activity may not be adequately supplied with food; or the elements supplied by the blood may be toxic from indigestion products or such poisons as alcohol, opiates, etc., or the patient may inhale insufficient oxygen, elimination may be defective, or bodily rest and fatigue may be out of proportion.

SYMPTOMS OF FAULTY METABOLISM.

When, during the use of this cell tonic, a patient is observed to take inadequate nourishment, fails to assimilate products of digestion, digestion is unusually faulty, does not excrete sufficient solids (especially nitrogenous elements) or fluids by kidneys, or amount of urea excreted is excessive together with loss of weight, cell changes in epidermis of skin or epithelium of tongue become defective, eliminative function of bowels requires unusual attention, skin becomes dry and patient complains of lassitude and depression or of unusual irritability—such symptoms, although not positively indicative, nevertheless need interpreting, especially when you are attempting to obtain permanent results with a cell tonic. Nine out of ten of the comparatively few relapses, while the Lymph is being used, reported by physicians, may be traced to neglect promptly and properly to interpret such symptoms as enumerated. As before stated, patients may be making apparently rapid progress during the development of such symptoms.

To repeat—the above symptoms of intrinsic cell faults may be due to three causes, viz.: (1) The action of the Lymph itself may cause excessive or disproportionate activity of cell reconstruction, decomposition or elimination. (2) The same condition may be caused by toxic principles (of internal or external origin), or improper quantity or quality of pabulum, possibly including oxygen, furnished cells by

the blood; by intercurrent hygienic errors, such as repeated fatigue, functional excesses, deficient rest, etc.; by intercurrent disease, or by extension of or new developments in primary disease. (3) A combination of above two causes.

Above all things, watch the nitrogenous output as evidenced by urea in urine when treating diseases of malnutrition or degeneration. If it is persistently increased and your patient is losing flesh, lower dose of Lymph Compound and increase nutrition with all classes of foodstuffs and by respiratory gymnastics in open air or in a well ventilated room—at the same time maintaining adequate elimination.

The Lymph Compound may be responsible if more than average doses are used (over 15 minims), or if moderate doses are used in a patient unusually susceptible. When symptoms of faulty metabolism are present and the causative action of the Lymph Compound cannot be excluded, the remedy should be withdrawn for 36 or 48 hours, a purgative administered, and afterward the Lymph resumed in smaller doses. If the Lymph Compound is at fault the symptoms should disappear within the time stated; if not at fault the other causes should be searched for and actively treated.

Therefore, the dosage of the Lymph Compound is in general regulated by the presence or absence of over-dosage symptoms *and* symptoms of faulty metabolism. Remember that the Lymph Compound is chiefly a cell tonic and that the degree of nourishment it furnishes cells and the systemic eliminative activity it excites are wholly insufficient in a majority of cases for the demands of reconstruction.

CHAPTER VI.

Administration—Intra-Spinal Injections.

Little need be added to the printed instructions except to discuss methods of, and indications for special sites of injection. The ordinary subcutaneous injections are made as follows: (1) Use platinum-iridium needles of different lengths—one-half, one-fourth and one inch—and a graduated all-glass syringe, with or without asbestos packing and washers. No other kind of packing or washers should come in contact with the Lymph Compound. The "Sub Q" syringe is the cheapest and is sufficiently durable. (2) This instrument is sterilized by heat, alcohol and sterile distilled water—used in the order named. Use no antiseptics for preparing needles, syringes, bottles, hands, skin, or anything which may come in contact with Lymph Compound, except heat, alcohol, sterile water and ether. Other antiseptics may, even in weakest solutions, produce an injurious chemical change in the Lymph Compound. (3) Just before loading the syringe thoroughly shake bottle containing the Lymph Compound. After removing air from syringe, and just before inserting needle, shake syringe so as better to emulsify cells in the Lymph Compound. (4) Sterilize skin with alcohol. (5) Injections usually made in buttocks, upper part of thigh, or on either side of spinal column; avoid arm, lower thigh, leg and anterior surface of trunk, except when certain local bone, joint, subcutaneous, skin or peripheral nerve lesions do not yield to injections made in usual

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INTRA-SPINAL INJECTION OF LYMPH COMPOUND.



DR. FORLINE LOCATING SITE FOR INJECTION, SHOWING PREPARATION OF PATIENT AND OPERATOR.

LEFT THUMB OVER SITE (CENTER THIRD LUMBAR SPACE) SHOWING INSTRUMENT.



places. (6) Inject needle at nearly a right angle to skin and always use pressure massage over site of injection for nearly a minute. (7) Use half-inch needle where there is little subcutaneous fat, otherwise use three-quarter or one-inch needle. Steel needles, or syringes with metallic frames or with packing and washers other than asbestos must not be used. (8) Always allow at least four and a half hours between injections given three times a day.

Special Sites: As a general rule do not repeat injections in areas named below if, after two such injections, the tissues prove intolerant evidenced by undue swelling or redness. Induration may follow any hypodermatic injection no matter how simple the fluid used. If the induration be attended with marked redness or swelling do not repeat injection in that area. (1) When a primary or complicating disease of bone, joint, muscle, peripheral nerve, skin or subcutaneous tissue does not yield satisfactorily after 20 or 30 days injection (twice a day) in the usual areas, give part of the injections as near such local lesions as the anatomy of parts permits. (2) Diseases of pelvic viscera or external genitalia which do not improve after 30 or 40 days injection (twice a day) in usual areas, should be treated as frequently as the tissues will tolerate by injections in ischio-rectal space, inserting the needle, so as to avoid blood vessels, on either side of median raphe.

INTRA-SPINAL INJECTIONS.

(3) The Lymph Compound is the first medicine ever injected in spinal canal for remedial purposes. Prof. Alex. C. Wiener deserves the credit for first suggesting, and Dr. Hamilton Forline for closely studying this administration. Although no serious results have occurred, and in spite of the very striking results obtained in optic atrophy and tabes, we cannot yet advise the general use of this innovation, nor can we fully describe the details of action, uses and other data until we know more about contra-indications, permanency of results and the occurrence or non-occurrence of latent after effects. Sufficient information is given below to indicate the pres-

ent status of this method. No matter what may be the final issue, one fact at least has been established by this unique use of the Lymph Compound, namely, that the preparation is unirritating, compatible with any tissue, and that its cells are ideally preserved.

These injections are made in the center of the third (or fourth) lumbar space, one-half inch to the side of line drawn through spinous processes. After thorough sterilization of an area of skin eight inches square, the center of area being site of injection—scrubbing with green soap, then alcohol, ether and finally sterile water, the patient sits erect so as to enable the physician to locate site of injection. Operator, prepared as for major operation, locates site by a straight line drawn through lumbar spine just touching highest point of iliac crests, and the center of this line locates spinous process of third lumbar vertebra; one-half inch below and external to this point is the site for injection. The patient then leans forward, supported by another chair, so as to widen inter-vertebral spaces. Platinum-iridium needle of sufficient length to reach the deepest spinal canal, calibre of ordinary hypodermic needle, is quickly inserted, the first quick push sending it about three-fourths of the distance, the final push just reaching the canal. While inserting, finger tips are spread along needle so as to insure its perpendicular entrance and to avoid bending. If properly inserted, the entrance of canal will be signalized by immediate and somewhat rapid flow, drop by drop, of spinal fluid. These drops are counted and operator is ready to connect syringe immediately the number of drops equals the number of minimis of Lymph to be injected. Entrance of air is prevented by approximation of overflowing needle and syringe. Lymph is injected very slowly, and needle quickly withdrawn, puncture being closed by tight pressure with alcohol soaked gauze for one-half minute, then sealed with colloidion. It is important that needle connect with syringe, not by a screw arrangement, but like a plug. Dr. Forline has devised a syringe and needle which is far superior to any other we have seen.

No cases have been treated by this method until the cell

INJECTING LYMPH AFTER ESCAPE OF SPINAL FLUID.



MAKING FIRM PRESSURE WITH STERILE GAUZE AFTER INJECTION.



tonic action of Lymph Compound has been well initiated by at least 80 to 90 subcutaneous injections. The intra-spinal injections are made twice a week. Tuesdays and Saturdays are usually selected; the injections being made about an hour after the noon meal. On these days no subcutaneous injections are given. Four or five minims of the specially filtered Lymph, is the usual beginning dose; 6 to 7 minims is the average, and 10 the maximum dose. Dr. Hawley prepares the Lymph Compound for these injections by repeating the original filtration process and very slightly diluting product with carbonized blood serum. This reduces the viscosity of the emulsified cells.

These injections should not be made in a patient who is extremely susceptible or has an idiosyncrasy to the Lymph Compound. It is necessary that the bowels and kidneys be normally active on the day of the intra-spinal injection, the patient free from temperature and not in a state of fatigue. Patients usually state that this method of injection is no more, or even less painful than the ordinary method. The immediate effects of these injections are chiefly an exaggeration of symptoms described under physiological action, plus certain variable sensory symptoms, mostly paresthesias, and, in cases of tabes in which pain is a symptom, the pain is occasionally increased for a few hours after injection. This increase of pain in tabes only occurs when pain was previously present, and, after the immediate increase following the injection, the pain has thus far disappeared between injections and remained permanently absent after completion of treatment. The ultimate physiological effects are resultant from the usual cell tonic-nutritive action of Lymph Compound, only this action is much more marked in the cells of the nervous system.

Clinical Results.—(Details given in Dr. Forline's report in Bulletins and Journals). Briefly, seven cases of optic atrophy treated; vision of six markedly and of one moderately improved. Other cases treating show partial restoration of vision. In one case of optic atrophy from penetrating injury recently treated by subcutaneous method, vision (previously nil) has been restored fully one-half.

In tabes of advanced types results, with few exceptions, have been marked as regards certain symptoms. Symptoms usually decidedly lessened are pain, sphincter paralysis, incoordination and anesthesia. Reflexes and Romberg symptom less responsive. A few results have been more comprehensive. About thirty-five cases are being treated. A few cases of ataxic and primary spastic paraplegia are responding in one or more of following symptoms: spasticity, motor weakness, exaggerated reflexes and incoordination.

We are not yet justified in announcing all indications for this original therapeutic procedure. Our data are wholly original, and although quite extensive animal experiments and clinical observations have been made, all of which indicate a future for this method of administration, we must nevertheless await more abundant study and clinical proof before drawing definite conclusions other than those cited above. It is the opinion of the writer, however, that this original method of administration will be eventually recognized as of great value in the treatment of chronic diseases of the nervous system.

CHAPTER VII.

Antagonists and Incompatibilities—Synergists.

ANTAGONISTS AND INCOMPATIBILITIES.

In general the physiological antagonists of this or any similar cell tonic-nutritive remedy are those agents which adversely effect the normal nutritive elements furnished cells, interfere with normal intrinsic cell functions, increase waste or diminish systemic elimination—in other words, measures which interfere with the normal income, output and activity of cells. These agents are chiefly as follows:

1. *Drugs:* Iodides, mercurials, except occasional use in laxative doses, alcoholics, cannabis indica, opiates, most hypnotics, especially chloral and its derivatives, and protracted, consecutive use of most coal tar preparations and salines. Alcohol should never be allowed except in certain cases of advanced senility, and then only in small doses. When a narcotic is exhibited no Lymph should be used for at least twelve hours afterward.

2. *Foods:* A diet not properly proportioned, i. e., a diet excessive in one class of food stuffs—proteids, carbohydrates, salts or water. Also foods not completely or easily digestible by the individual. Especially should foods which cause fermentation be avoided, e. g., sweets, root vegetables and other starches difficult of digestion, and those foods which leave a residue.

3. *Oxygen:* Insufficient supply because of environment or improper execution of respiration.

4. *Indigestion* may not only furnish imperfect nutri-

tion for cell assimilation, but also certain toxic products of indigestion. The prevention of auto-intoxication, especially the chronic type, and the correction of indigestion are subjects which must receive the constant attention of the therapist using a cell tonic. Their importance ranks next to the determination of adequate quantity and quality of food. If intestinal flatulency is chronic remove the gas as frequently as possible and actively treat the cause.

5. *Fatigue* even in moderate degree may, if frequently repeated, effectually antagonize any cell tonic for obvious reasons. The accumulation of decomposition products—"fatigue stuffs"—interferes with cell changes as shown by the fact that a fatigued muscle absorbs less oxygen and evolves less carbon dioxide. Mental fatigue must likewise be avoided, and so far as possible the causes of nerve exhaustion or irritation.

6. *Excessive Functional Activity:* No explanation needed more than to remind ourselves of the importance of its avoidance by recalling the fact that actual cell atrophy is a common result of this cause.

7. Excessive and persistent use of tobacco is unquestionably a cause of cell degeneration and should therefore be avoided. Very little tobacco should be allowed patients treated for certain severe functional nerve diseases.

8. *Constipation* more than any other eliminative fault must be corrected. For this purpose, dietetics, mechanics, and tonic laxatives should be used in preference to cathartics. If these fail, cathartics must be used or even salines if necessary. *Constipation must be avoided.* Carefully watch the quantity and quality of urine. Avoid drug diuretics if possible. Remember the interpretation of increased or decreased urea as a guide to dosage of Lymph Compound.

9. Other hygienic errors such as insufficient rest or exercise (absolute rest may be indicated especially in severe anemia), late or irregular hours for definite daily acts, such as eating, retiring and executing eliminations; unsanitary environment, personal uncleanliness, insufficient mastication of food etc.

Chemically, the Lymph Compound cannot, so far as we know, be mixed with any diluent other than distilled water or blood serum at a temperature of 70 degrees Fahr., sterilized by process described under "Preparation." Very little of these diluents can be added without injuring the integrity of the protoplasm of the cells in the Lymph Compound. No antiseptic can be used for sterilizing anything such as bottles, syringes, needles etc., which may be brought in contact with the Lymph Compound, except alcohol, ether, water and heat.

SYNERGISTS.

Such detailed hygienic instructions as are furnished physicians for their patients, may cause our critics to explain reported results by the liberal use of hygienic reform, dietetics and other non-medicinal synergists. Let us take this opportunity emphatically to state what every practical physician must know, namely, that a majority of patients (especially Americans) will either neglect more than half of such instructions or will disregard them wholly; partly because they were not properly advised, but chiefly because of natural tendency. It is also known that a large majority of busy practitioners will similarly neglect or imperfectly teach those same non-medicinal instructions. However, strict obedience on the part of patients to every hygienic, non-medicinal dictum printed in these instructions, as well as those printed in medical literature, could not alone accomplish more than a small part of the *structural* improvement or curative results in most of the chronic functional diseases, reported from the use of the Lymph Compound plus rules of hygienic reform. No competent therapist would deny that obedience to such instructions may frequently result in the improvement or even cure of certain functional imperfections, and, occasionally, of recent degenerative accumulations. On the other hand he must admit that the remedial possibilities of such measures alone cease when confronted with a chronic structural lesion of a degree sufficient to determine such severe pathologic entities

as characterize the diseases for which this cell therapy has been chiefly used.

That no such limitations confine the therapeutic power of the remedy under discussion, has been proven beyond question. The numerous and clearly indicated instructions advised as adjuvants to the Lymph Compound cannot alone remove a large rheumatic bony overgrowth, markedly restore cell tone nearly destroyed by cord degeneration, adequately compensate, in certain structures, areas of complete cell metamorphosis, or lessen effects of a cardiovascular degeneration sufficiently to supply competency to an exhausted heart and propulsive power to crooked sclerosed arteries. Nevertheless part of such results would often fail to materialize were it not for the help given the basic remedy by those measures which augment the metabolic quotient. Therefore we must not underestimate the value of these adjuvants any more than our critics would absurdly exaggerate them.

The Lymph Compound is used for the accomplishment of great effects, most of which were known and announced to be beyond the reach of therapy only three years ago; and now that this therapeutic innovation has abundantly proven the fallacy of opinions nearly as old as medical history, our ultra conservative critics would explain these hitherto unknown results by ascribing them to remedial agents of age nearly equal to that of the theory exploded.

All the simple measures advised as synergists are indirect cell tonics. It would be just as useless to attempt the reconstruction of cells with a tonic and mildly nutritive agent alone, as it would be to repair a time worn electrical mechanism by simply connecting its motor with another current and slightly increasing the elements which generated its own supply. In order to do our full duty to our patients we must always assist even a specific medicament with every indicated non-medicinal synergist. Even medicinal synergists should be administered when indications are present which cannot be met by the specific used. No matter what specific cell tonic is used, whether it be known at present or discovered in the future, the physician who fails persist-

ently to urge his patients to live properly and to follow specially indicated instructions relative to hydrotherapy, diet, exercises, rest, respiratory gymnastics etc.—is either unacquainted with the value of such instructions or is grossly negligent. Successful cellular therapy or reconstructive treatment must always comprise two elements, (1) an efficient cell tonic or, at least, alterative, and (2) all measures or agents, such as hygienic reform, which favor general metabolism.

These adjuvants need no repetition in this article. They may easily be deduced from what has been stated under physiological action and antagonists, and by a study of applied physiology. It is sufficient to state that hydrotherapy, mechanical therapeutics, respiratory gymnastics, physical exercises, dietetics, electricity and rest are, when indicated, valuable adjuncts to any cell tonic therapy, and that general hygienic reform is a subject which must constantly be taught the patients treated.

Under the following headings you can tabulate all features of non-medicinal therapy, and remembering these headings you can outline indicated instructions without being incomplete: Air—Water—Food—Mechanics—Exercise—Rest—Habits—Environment—Mental (hygiene and re-education)—Heat and Cold—Electricity.

CHAPTER VIII.

The Use of the New Animal Therapy In Chronic Diseases.

This chapter is devoted to the discussion in detail of the points in the use of this new therapy which are essential to its intelligent and successful application.

The nature of the facts enumerated below should convince the reader who has not used the preparation that this remedy has not been established upon empirical, unscientific or hasty conclusions, and that complete results are rarely obtained by any such practice as "You inject the remedy and it does the rest," the Lymph Compound being no specific or panacea except in so far as its unprecedented cell tonic-nutritive properties and unique cardiovascular action render its use unusually effective.

Before attempting the employment of this cell therapy let the physician understand at the outset that his medical knowledge will be in more constant demand than in the use of any other recognized therapy, successful results requiring exhaustive examinations, accurate interpretations, and constant, intelligent recognition of indications for synergists, the latter being largely non-medicinal. The treatment of chronic diseases with reasonable assurance of decisive results, and hope of a cure, is a far different exercise for scientific faculties than treatment without such a prospect with orthodox remedies. The term "orthodox therapy" is a safeguard but often represents a lazy job.

i. If medicines are used with the Lymph Compound they must not only be compatible synergists but their adminis-

tration should be temporary, since drugs are usually indicated only for given symptoms which cannot adequately be reached by the Lymph Compound. Discontinue their use immediately the symptom is removed or is lessened sufficiently to prevent its anti-metabolic effect.

2. The following indications, when not fulfilled by the Lymph Compound and rational rules of hygiene, exemplify conditions which may be met successfully with the non-medicinal measures suggested:

Motor insufficiency of stomach—lavage, stomach massage and deep breathing exercises, with easily digested, not bulky diet of solids or semi-solids; avoid fluids. Ditto of small and large intestines—enema-manipulation treatment, respiratory gymnastics and special exercises, an easily digested, largely proteid diet, with plenty of water between meals. Renal insufficiency—enteroclysis, hot normal salt solution given in knee-chest posture, and drinking large quantities distilled water or other water of low specific gravity, preferably on an empty stomach. Seminal vesiculitis—repeated expression of contents of vesicles by digital manipulation.

Insomnia, congestive in type—hot and cold reaction bath, salt glow, and alternate contraction of muscles after retiring. (See Bulletin No. 8, and Journal, Vol. 1, No. 2). Sialagogues—chewing (not swallowing) after eating, such vegetables as onions, aromatic roots or seeds, etc. Susceptibility to atmospheric changes—quick, cold shower baths before dressing. (See Vol. 1, No. 2, Journal). Pelvic congestion, insufficient chest expansion, and deficient oxygenation from environment or pulmonary insufficiency—respiratory gymnastics and special exercises. Cardiac fatigue or exhaustion or poor peripheral circulation—saline baths (or salt glows) with resisted exercise according to Schott method, and deep breathing exercises. Muscular rheumatism or joint strain—overlapping strips of surgeons' plaster applied so as to immobilize muscles. Incoördination—re-education in voluntary movements. (See Vol. 1, No. 2, Journal).

Such measures as the above should be sufficiently used,

when possible, before medicinal agents are exhibited, as in most cases the former are curative—the latter palliative. Hydriatics, mechanics, passive and active exercises and respiratory gymnastics would, if rightly used, accomplish more actual benefit in many chronic diseases than all the medicinal eliminatives, antipyretics, digestants, cardiovascular remedies and, except the Lymph Compound and nuclein, tonic alterative agents known to science.

3. As examples of symptoms requiring energetic, though usually temporary, medicinal treatment, when the Lymph is being used :

Constipation, renal insufficiency, abnormally diminished secretion and excretion of skin and liver, lessened motor, secretive and absorptive functions of alimentary canal. Also persistent or frequently recurring fever over 100 degrees Fahr., which is not lowered by hydrotherapy, and cardiac fatigue or exhaustion if not rapidly benefited by the Lymph Compound with respiratory gymnastics and Schott treatment. Select the least depressing antipyretics, such as phenacetin and its congeners. Indications for alteratives, systemic tonics and hypnotics not appreciably lessened by two or three weeks' use of Lymph Compound, assisted by rational hygiene and suggested non-medicinal agents, should be met with small doses of appropriate remedies. Remember that there are many non-medicinal tonic alteratives and hypnotics. In using hypnotics avoid chloral and its derivatives; use sulfonol, lactophenine or trionol dissolved in hot water.

The above are symptoms which directly menace metabolism and decidedly antagonize a cell tonic, and therefore must not be left to non-medicinal therapy in event of failure of such treatment after a short trial. Occasionally such remedies as alteratives (in small doses), general tonics and tonic laxatives may be needed throughout treatment. As a general rule, however, never use a medicinal adjuvant unless indications are well defined and their fulfillment immediately demanded. A complete cell tonic will reach a great variety of symptoms if properly used and for a sufficient period of time.

Remember that large doses of most alteratives promote destructive metamorphosis, as does also the protracted use, in large doses, of salines. It is a striking fact that most of the reports of unsatisfactory results come from practitioners who use their drug armamentaria liberally, their knowledge of non-medicinal therapy stingily and the numerous means of exhaustive case study lazily.

4. Never accept a case for the Lymph treatment, make a prognosis, or outline therapy until an exhaustive examination is made and recorded. Always do your duty to your profession (and possibly to your patient), by forwarding reports, on blanks furnished, of all cases. Supplement this report from time to time by sufficient addenda, especially as regards results. In the event of a given disease not yielding, do not fail to report all possible data, negative and affirmative, which might explain whether the Lymph is antagonized or inefficient. If you would increase your practice, income and results many-fold, adopt as a rule of practice, never to treat a patient or make a definite statement until you have examined that patient's organs, structures and functions as completely as the diagnostic art permits. And above all do not forget to explain to each patient the interpretation of every sign elicited. It may be harmful to explain *what* you do for a disease but most helpful to explain *why* you do it. Your patient's complete confidence is a better remedy than any single agent in the pharmacopeia.

5. Remember that few physicians can use this agent intelligently or accomplish accurate results and satisfactory terminations in a large number of cases without sufficient practical knowledge of the theory of cell construction and decomposition, and of general applied physiology, to enable them successfully to recognize and interpret the symptomatic evidences of cell changes—functional and textural. Such a knowledge is not only essential to the securement of best results, but also to honest selection of cases and relatively accurate prognoses.

6. Because the Lymph Compound is an unusually marked innovation in therapy, physicians as well as patients are inclined to expect such decidedly rapid results in extensive or

advanced organic diseases as have been and are being obtained in isolated cases. Comparisons with other special therapy, even specific, when used in serious chronic diseases, and also the theory of the physiological action of this remedy, clearly teach the absurdity of expecting the Lymph Compound—or other agents similarly applied—permanently to remove most of the objective and subjective symptoms of serious organic disease within one or two months. Even the laity must be cognizant of the above facts. True it is that the Lymph Compound has often quickly accomplished very complete improvement in such diseases, but these results are exceptional and probably indicate that the lesions in the diseases treated were more functional than textural, that the histologic changes were not advanced, or that, in a given organ, the lesion was so located as not markedly to impair functions.

Consider the duration of other treatment with the most successful measures or remedies known to the profession, in the class of diseases for which the Lymph Compound is usually exhibited; and then compare the time required for even very moderate improvement, chiefly subjective, with these agents, with the average duration of treatment and the results obtained, equally objective and subjective, with the Lymph Compound. Select even chronic diseases for which specifics have been found, or, strictly speaking, the only chronic disease having a specific remedy—syphilis. Even the most sanguine authorities demand two years' treatment for syphilis. Would not a physician justly earn praise for rapid results, if, in a severe case of chronic articular rheumatism, he were to remove one-half of diseased evidences after ten or twelve months use of tonics, alteratives, mechanics, dietetics, heat, etc.? or a similar degree of improvement after two years' orthodox treatment of advanced tabes, arthritis deformans, arterial sclerosis and interstitial nephritis? It is sufficient to state that results far superior to those above described are obtained in the same diseases after much briefer use of the remedy herein described.

7. A true conception of the conditions to be overcome by the action of this cell tonic in chronic structural dis-

eases, is apparent when we realize that the Lymph Compound must produce its alterative, tonic-nutritive effects by the adequate restoration of the functions comprising the elementary processes of metabolism, in an almost infinite number of cells; that in certain diseases it must improve other than nutritional cell functions; and that the above results cannot progress consecutively since the correction of marked cell faults by restoring lost and increasing weakened cell functions necessitates not only the action of a direct cell tonic but also the adequate action of natural forces. Such natural forces are the ingestion, assimilation and elaboration of food, oxidization of food and decomposition products and adequate functionization of eliminative organs—all of which are indirect cell tonics. Furthermore, these natural, vital synergists of a direct cell tonic must, in the diseases cited, not only aid in maintaining sufficient cell vitality to prevent increased cell degeneration, but also to increase reconstruction in order that the Lymph Compound may progressively benefit these chronic disorders. It is needless to state that the vital functions named cannot constantly work sufficiently in degree or in harmony one to the other, to meet the extra demand of a cell tonic remedy.

It is a fact that the action of this therapy is extremely rapid—far more rapid than that of any other remedy or method of treatment, in view of the character of its results. The impatient patient should be reminded of the fact that many chronic diseases which have continuously advanced for several years have been checked and their lesions largely removed or compensated after several months use of the Lymph Compound; whereas, had the same remedy obtained the same results in half as many years as it took the causes of the diseases to produce the lesions, that remedial action might well be called rapid.

CHAPTER IX.

Prognoses and Duration of Treatment—Early Effects of the Therapy.

Prognoses and Duration of Treatment.—The usual principles of therapy regarding the duration of treatment are not, as a whole, applicable to this new therapy and therefore several well established facts regarding this subject are given below for the assistance of physicians using this remedy. It will be evident from the character of the chronic diseases treated by the Lymph Compound and the results obtained, that certain original theorems should have been learned regarding conditions governing and the possibilities of treatment in chronic diseases. Many of the results commonly obtained have been hitherto unknown in therapeusis. Established opinions in prognosis and treatment of chronic diseases are based on indication and limitation theories, some of which have been proven fallacious by the action and results of this remedy. For example, orthodox prognoses were formulated from clinical and pathological data which indicated as irremediable, or at least incurable, a large majority of structural degenerations. A goodly number of these textural metamorphoses have been appreciably lessened, practically removed or adequately compensated—as evidenced by objective findings—from the use of this cell tonic-nutritive agent. Sufficient time has elapsed since these results were demonstrated, and the number of cases treated is sufficiently large positively to prove the permanency and reliability of the therapeutic effects. Not

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effects of the Lymph Compound, other than its cell action *per se*, the remedy may be continued for the benefit of such conditions as faulty circulation, congestion, heart insufficiency, peripheral blood vessel atony, functional nerve disability, insomnia, mental obtundity and nerve exhaustion. We must not forget the valuable and unusual action of the Lymph upon the blood, heart, capillaries, central nervous system and cerebration.

(3) As an example of unfavorable action: When, in the treatment of a nutritional disorder, the patient is not improving, and with a loss of flesh there is noted an increased output of urea, marked anorexia and physical depression,—the Lymph should not be discontinued, except temporarily, until, after using the following treatment, the resumption of the Lymph in smaller doses immediately causes the symptoms to re-appear: Suspend use of Lymph, institute a thorough hygienic reform, confine patient to a very easily digested, limited and properly proportioned dietary, excite free catharsis and diuresis and have patient rest in well ventilated environment, taking deep breathing exercises in open air at frequent intervals. A hot air sweat may be needed if renal disease is present. If patient is full blooded and over normal weight no food except water should be allowed for first eighteen hours. When Lymph is resumed begin with smaller doses and insist upon proper diet, hygiene and habits.

(4) The length of time requisite to inaugurate the cell action of the Lymph is of course variable. Experience has taught certain general limits depending more upon individual susceptibility than upon the nature, duration or extent of the disease treated. The responsiveness of an individual is to a degree determined by the following conditions: Delayed by very faulty digestion, fever, over 102, renal disease, abnormally poor or capricious appetite, severe anemia, previous protracted use of cell depressants or irritants up to time of beginning treatment, and (as a rule) hysteria. Increased by the absence of above symptoms, adequate elimination from bowels and kidneys, hygienic environments and customs. As a rule textural degenerations or in-

filtrations yield more rapidly than purely functional disorders. Organic degeneration of heart, blood vessels, bone, cord and peripheral nerves usually yield more rapidly, as do also chronic infections caused by tubercle, pyogenic or gonorrhreal bacteria.

Many physicians have observed very decided and ultimately rapid results in cases which did not show any material metabolic response during the first three, four or even six weeks of treatment. A careful search for the below mentioned evidences, objective or subjective, of increased cell functioning or nutrition will almost invariably reveal such effects during the first two weeks' use of the Lymph Compound, if injected twice daily in average medicinal doses; these two weeks date from the first full dose injected.

EARLY EFFECTS OF THE THERAPY.

The first evidences usually observed of the chief action (cell tonic-nutritive) of the remedy are as follows: Subjective: Clearer, more retentive and acute cerebration; greater resistance, power and suppleness of voluntary muscular efforts; better results from and character of sleep; increased susceptibility to atmospheric changes—an early temporary effect due to activity of skin excretion. When cell and systemic elimination is unusually active early in treatment, a temporary asthenia or languor may be experienced.

Objective: Skin more moist, warm and smooth and hair more oily—these effects due to increased activity of skin glands, better exfoliation, and capillary circulation; special senses—increased acuteness of; peripheral circulation improved, noted in sclerotics, lips, under finger nails and extremities—due to tonic dilatation of capillaries and increased heart tone; urine—quantity usually increased if previously lowered, and urea increased a little later; respiratory quotient—CO₂ often increased, usually in second week; heart—force moderately and rate slightly increased, more noticeable in cardiac fatigue or exhaustion; face—usually better color of skin, distended venules reduced and general expression brighter. A little later there is an increased de-

PROGNOSSES—DURATION AND EARLY EFFECT. 77

mand for food, increased bowel tone and a general betterment of skin elasticity—recovering more rapidly after pressure. Rarely are all of the above effects noted at the same time.

The early cardiovascular and nerve improvements are due more to direct effect on the circulatory and nervous systems, than to metabolic influence.

Physicians using this cell tonic should make frequent use of manometers, complete urinary test outfit, agility tests (the height of jump during slight fatigue after running), development measurements, memory and application tests, spirometer, sphygmograph, and electricity for testing skin sensibility, muscular reactions etc. Reactions to the above tests are extremely interesting if made comparative before and during the use of this cell therapy. Not only this, but they likewise serve as an honest encouragement and as a reliable, definite guide to response of cellular state of patient.

CHAPTER X.

The Active Principles in the Lymph Compound—Other New Contributions to Medicine.

ACTIVE PRINCIPLES.

Cumulated data positively demonstrate the existence of an unusually potent active principle, or principles, other than spermin and nuclein, in the animal ingredients of the Lymph Compound, and that the spermin and nuclein in the Lymph are highly concentrated and used in their native condition and liberated in a *nascent* state.

Proof: (1) Proof already furnished that the preparation possesses a physiological action, and that that action is decided, definite and in degree, and partly in character, of an hitherto undeveloped nature. (2) Former truths: The existence of an internal secretion or active principle in cells, proven by Brown-Sequard. The elaboration, by physiologists, of two active principles or internal secretions in the two animal fluids used in the Lymph Compound, i. e., lymph and testicular secretion (or their cells), namely, nuclein and spermin. Nuclein and spermin have both been derived from the animal ingredients in the Lymph. Credit is due Brown-Sequard for the original conception of such principles or secretions. Poehl and Aulde deserve credit for utilizing Brown-Sequard's investigations by separating and preparing a salt of spermin and nuclein. These preparations are cell tonics. (3) *A priori*, it is logical to conclude that, in view of the concentrated character of the fluids in the Lymph Compound, containing the two sources of at least two definite secretions or principles in

their native condition, and the fact that these active principles may be separated from these ingredients, which ingredients are preserved sufficiently to prevent decomposition of their intrinsic therapeutic principles—therefore, the Lymph Compound must not only possess at least two active principles, but must also contain them in a highly concentrated and therapeutically active form. The increased activity of the principles in the Lymph Compound is abundantly demonstrated by physiological and clinical proof, and is explained by the fact that the principles are preserved and used in their natural and concentrated condition, and, being liberated from the fluids or cell protoplasm immediately after their injection, they act in what may be termed a nascent state. (4) That this preparation contains other active principles than the two elements demonstrated is evidenced by physiological and therapeutical results, partly different in character and more extensive in number and decided in degree than can be explained by the action of the preparations of spermin and nuclein now in use, or the fact that these two principles are more active and concentrated in the Lymph Compound. The Lymph produces practically all the physiological effects of spermin and nuclein, plus other very different effects.

Poehl has isolated spermin from orchitic juice and also shown that the substance exists in blood and ductless glands, considering it to be a decomposition product of leucocytes. He claims to have proven that spermin possesses decided oxidizing properties, increasing alkalinity of blood and capable of oxidizing into urea, leucomains and other catalytic toxic products, thus preventing their deleterious effects. The Lymph Compound has not been shown to increase alkalinity of blood, but that it does increase oxidation is abundantly proven.

Aulde justly claims for nuclein the properties of a cell tonic, increasing oxidation, favoring elimination and increasing leucocytosis; that nuclein is a product of polymorphous white blood cells and that its function is to maintain a healthy condition of the tissues and fluids of body; also that nuclein may be obtained from the vegetable kingdom, al-

though he derives it from the animal. All of the remedial properties claimed for nuclein, as prepared by Aulde, are identical with certain actions of the Lymph Compound, except that these actions of Aulde's product seem more valuable in acute diseases than similar properties of the Lymph Compound, while the same properties of the Lymph Compound are more valuable than nuclein alone in certain chronic diseases. As before stated, certain physiologic effects other than those of a cell tonic, *per se*, are proven to be possessed by the Lymph Compound, notably its cardiovascular, central nervous system and nutritive effects, as well as its action on the blood cells, eliminative organs and the degree of its action on cell functions, sensibility and motion, as shown in chronic diseases and senility.

The exact composition of the additional active principle or principles in the animal fluids, extracts or cells (chiefly the latter) of the Lymph Compound is not fully known. From what has been learned in the laboratory and clinic, the following hypotheses are justified: (1) That it is a defensive proteid, a congener of nuclein, having direct and marked tonic effects upon involuntary and heart muscle fiber, and a direct tonic action upon the entire nervous system; (2) that it is undoubtedly true that this undifferentiated secretion, ferment or principle is responsible for the action of the Lymph Compound upon the function of sensibility possessed by certain cells; (3) that this principle exists in the cells and concentrated fluid extracts of the Lymph Compound, since the removal of either of these ingredients detracts from the physiologic action of the preparation part of the effects described above.

The possibility of this principle proving to be a ferment must not be overlooked, and if so the discovery will be of great value to physiology. Even now many theories and hypotheses have been advanced which strongly indicate the presence of such a ferment in the blood or lymph—probably a product of lymphocytes. For example, T. Lander Brunton, speaking of the action of alteratives (Quain's dictionary, Vol. 1, page 53), urges the probability of certain protoplasmic cell changes being effected by ferments. He shows

that the changes do not depend on oxidation, because, although during health catabolic products are oxidized as fast as formed, nevertheless under certain conditions tissues are decomposed so rapidly that their products are only partly oxidized. This is seen in the pathogenesis of fatty degeneration when caused by phosphorus or certain metallic poisoning; these toxic agents causing muscle decomposition into nitrogenous products, leucin, tyrosin or urea and fat—all but the last passing off in urine, while the fat accumulates in places previously occupied by muscle. He further suggests the possibility that alterative agents influence nutrition either by altering the action of ferments or by altering susceptibility of tissues to their action.

It is to be hoped that the exact composition of this unknown principle, or at least whether it is a defensive proteid or ferment, will have been determined before the next yearly meeting of the American Animal Therapy Association.

We have already proven that the principles exist in the protoplasm of certain lymphocytes and spermatozoa, and in the fluid extracts (by trituration and pressure) of the glands generating these cells, because after filtering the Lymph Compound the filtrate is almost entirely inert, whereas, a re-emulsion of the concentrated sediment removed by filter evidences the usual physiologic action previously described. We know that these unknown principles cannot be separated by heat or various chemical reagents, including those used for preparation of spermin. It is possible, although by no means certain, that these principles cannot be separated from cell protoplasm except after injection of cells containing them into the human body.

In addition to the above facts regarding active principles, the original physiological and therapeutic facts contributed to medicine by the researches incident to the preparation, and the clinical and experimental use of the Lymph Compound, have been numerous and of unusual theoretic and utilitarian value. Most of these additional contributions are already apparent to the reader of this publication, and there-

fore only a summary of the additional important points will be given.

OTHER NEW CONTRIBUTIONS TO MEDICINE.

First: A fluid containing an emulsified sediment, which sediment is composed of properly preserved animal cells and concentrated fluid extracts derived from glands and organs by expression, subsequent coagulation prevented, and from which coagula, fat and connective tissue have been removed,—may be injected under the skin or into the serous cavities without local or systemic injury. This discovery permits valuable remedial preparations being derived from certain fluids, glands and structures which should eventually replace the dessicated extracts now given by mouth, as well as add other unusually active and efficient animal therapy to our present limited supply. This contribution alone is of more value than any therapeutic theory, relative to chronic diseases, demonstrated during recent years. We have already nearly perfected fluid, concentrated extracts of thyroid, thymus, supra-renal and testicular glands, using nearly the same process as that used for preparation of the Lymph Compound.

Second: Internal secretions, ferments or products of animal cells may be preserved so as to be liberated in a nascent state, and thus be more active, by proper preservation of cell protoplasm.

Third: Conversely, cell protoplasm may be preserved indefinitely, if afterward excluded from severe extremes of temperature, without destroying its texture or internal secretion.

Fourth: Pure, concentrated orchitic fluid is more remedial when derived from globus major and minor and epididymis, and may be safely injected under the skin if properly preserved and diluted with six to eight parts of emulsifying menstruum to one part of the fluid.

Fifth: An active tonic, at least to the nutritional function of fixed tissue cells and to the phagocytic function of certain leucocytes, having a wide range of therapeutic value,

may be derived from lymph and orchitic fluid and the glands which generate the motile protoplasmic bodies in these fluids.

Sixth: A concentrated food ready for assimilation by cells when injected under the skin, may be derived from the same sources as above described.

Seventh: In addition to the above we have shown the developmental possibilities of the goat's lymphatic system; the extensive remedial accomplishments possible to an agent which acts as an alterative, nutritive and tonic to fixed tissue cells, and as a tonic to phagocytes; the fallacies of previously conceived limitations to the treatment of chronic textural diseases, and, incidentally, the value of liberalism in the use of new therapeutic departures.

What a striking lesson is taught by the unusual success of this radical innovation in therapy, and especially if we consider what would have happened had the medical profession been wholly or even chiefly composed of skeptics or extreme conservatists, when this cellular therapy was first introduced! Before needless negative objections could have been satisfied and obstructive inactive conservatism aroused, the remains of this now established therapeutic marvel would probably have been wrapped in a shroud, along with many thousand patients now far removed from such an unwelcome covering. Fortunately, however, this new animal therapy was offered to the profession at a time of universal discouragement with the ancient palliative treatment of most chronic diseases, when the most energetic and persistent obstructive efforts of an army of physicians could not have prevented generous application of a remedy which promised definite hope for therapeutic progress beyond limits but slightly advanced during a century of unprecedented scientific growth.

CHAPTER XI.

Common Errors in Reporting Cases.

It seems advisable for practical reasons to devote a chapter of this book to pointing out some of the mistakes made by physicians writing case histories, or in expressing requests for information regarding medical theory and practice. In spite of the commonness of these errors—chiefly of omission—and the resultant faulty impressions given or answers received, and other numerous harmful effects, this is a subject which we have never seen discussed in medical literature. Consult any of the popular medical journals which contain a "Queries" department and you will find ample evidence for the need of such a discussion as we shall attempt. It requires no argument to show the many evil effects of these erratic and incomplete statements of fact in the interrogations sent to editors, medical directors, consulting physicians etc. Let us state right here that we do not refer to errors of syntax or spelling, unless it be to suggest that a great many physicians will persist in capitalizing the names of most diseases.

When we realize that volumes of such defective questions are mailed each month, it is possible to conceive an approximate idea of the liberal amount of delayed, incompetent, useless or actually damaging advice for which the writers of improperly worded questions are primarily responsible. Medical editors are secondarily to blame for these errors, because they publish and attempt to answer questions, a majority of which recite insufficient or palpably erroneous data.

A diagnosis and treatment based on a question giving many subjective symptoms, a few points in family and personal history, and a few positive and fewer negative findings, must always be incomplete; and if partly accurate such accuracy is largely the result of a lucky guess. If the recipient of such questions returns them for addenda, a delay is caused which may prove injurious to the patient. On the other hand the publication of faulty questions with answers encourages the repetition of the mistakes of expression, as well as (impliedly) of the examinations from which the questions originate. The welfare of the patient and physician would be far better conserved if all such questions were returned for corrections. A delayed answer would cause much less harm than a guessed answer.

The commonest errors in medical queries are incomplete and inaccurate descriptions, use of meaningless phrases or of words having a double meaning, and lack of system.

We may better emphasize the importance of properly framed questions by exemplifying the errors referred to above. These questions usually call for a diagnosis, treatment or both, and examples of questions containing, not one or two, but all of the faults described above, are very easily found.

The following example is an actual quotation from a medical journal, the query changed in several unimportant details so as to disguise the original.

"Q. I have a patient, male, age 60, who has complained of heart failure for several years. At present he is troubled with a dull, occasionally sharp pain over heart, and becomes dyspneic on slightest exertion. Pulse small, weak and slow—about 60. For nearly a year he has been losing flesh and strength. Digestion poor, tongue coated, kidneys somewhat weak. Nervous system in fair condition. Occasional diarrhea and insomnia. Family history negative. His heart weakness gives him great annoyance as he is unable to do any work either mental or physical. [Here followed a list of drugs which had failed to benefit the patient]. What would you advise and what is the cause of the symptoms?"

This question exemplifies all of the common errors men-

tioned above. It was answered with therapeutic suggestions but no diagnosis offered—it was probably overlooked. Hypothetical diagnoses could be made from the above data until the nomenclature of chronic diseases had been largely exhausted.

First. The question is extremely incomplete for it fails to give a single *diagnostic*, objective symptom. If we except "kidneys weak and nerves fair" the only objective data are pulse and tongue conditions. Effects of possibly grave diseases are stated, the evidence of cause of effects omitted. Patient is dyspneic, asthenic, emaciated, has precordial pain, faulty digestion and the only evidence given of possible source of symptoms is that patient "complains of heart weakness and has a small, weak, slow pulse." Each or all of these symptoms might be due to the various organic heart lesions, aortic aneurism or atheroma, general arterial sclerosis, various diseases of lungs or other peripheral obstructions to circulation, uremia, dilatation of stomach, malignant neoplasms etc., etc. The quizzer does not offer a diagnosis and expects another to do so without submitting a single negative finding except regarding the family.

Physicians should devote more study to inductive methods of diagnosis by learning the various interpretations of such common symptoms as dyspnea, precordial pain, asthenia, cough, hemorrhage from mouth etc. In this way they learn the great importance of reporting—as well as searching for—the negative together with the affirmative explanation of prominent symptoms. For example, dyspnea may be caused by certain diseases of heart, lungs, blood and by centric irritation or local brain or nerve disease. From these headings we may deduce over thirty different conditions which may produce dyspnea. An easy way to learn these interpretations is to occupy idle hours thinking out the various conditions and diseases which could cause a given common symptom. No text-book classification is necessary and in fact one's own classification will be more easily remembered.

Above all things when you request assistance in treatment, although you feel sure of diagnosis, remember the great

frequency of error or incompleteness in naming a morbid process and therefore recite all negative findings necessary to a clear description. Also remember that only as a means of aiding the interpretation of the real crucial symptoms (objective findings) are subjective symptoms diagnostic. Because of the great frequency of *incomplete* diagnoses it is safer to act on the basis that every chronic disease is complicated and that pathognomonic symptoms do not exist.

Another common fault of incompleteness is failure to describe type, degree and extent of a given lesion. Different stages etc. of a chronic disease usually demand radically different treatment. The term "Bright's disease" when unqualified well exemplifies this fault.

Second: The question is inaccurate because in it the doctor assumes that the patient has heart weakness without the slightest satisfactory proof that the heart's muscle is texturally injured. He apparently believes—a common mistake—that a heart may be chronically incompetent without organic change. Many call such an impossible condition "heart weakness." The expression "heart weakness" is very unfortunate. If it means anything it means that the heart has undergone temporary or permanent mural change sufficient to produce positive evidence of more or less cardiac incompetency—the lesion being fatty infiltration, interstitial degeneration or thinning (by dilatation) of heart's wall. Thus we see the indefinite and confusing meaning of such a term. The expression has its analogy in "kidneys weak", "liver out of order", "chronic dyspepsia" (used to express a disease), "weak lungs" etc.

Let us again refer to "heart weakness" and at least correct this one abuse of medical nomenclature; in fact the most harmful abuse, because of the greater importance of intelligent interpretation of the heart's condition.

A heart is never weak or, better, incompetent, until that organ is unable to maintain the normal arterio-venous balance of circulation. When a heart's action is incapable of maintaining a normal circulatory balance it is safe to assume that the heart's muscle is acutely or chronically altered;

acutely, in the cloudy swelling or fatty degeneration incident to severe protracted fevers; chronically, in the dilatation produced by increased intra-cardiac pressure (from intrinsic or extrinsic obstruction), by mural degeneration or infiltration, and finally a dilatation, with or without degeneration, from overaction or malnutrition. Of course a faulty innervation, either from functional or structural changes (as in general nerve exhaustion, pressure on pneumogastric or centric irritation or lesion), may alter the rate, rythm, or even strength of the heart's action, but when the heart becomes incompetent to perform its great mechanical function, we may safely assume that the heart's muscle has become changed.

Therefore instead of speaking of a heart as "weak" or even as incompetent—although the latter term is proper—we should use terms which indicate the degree or nature of the heart's incompetency. The usefulness of the following nomenclature is apparent.

1. *Competent Heart:* Function of heart perfectly performed, i. e., the general arterial and venous circulation normally balanced. Every organic disease of heart—except acute lesions such as malignant endocarditis and the fatty degeneration incident to acute infectious diseases—may be present and yet the heart be perfectly competent to perform its function.

2. *Exhausted Heart:* Heart absolutely incompetent to perform its functions, the lost arterio-venous balance evidenced by venous congestion of lungs, liver, kidneys, stomach and intestines with anasarca, effusion in one or more serous sacs and marked dilatation of heart's cavity. Organic change always present, either primary dilatation or mural degeneration or secondary dilatation due to causes outside of heart such as arterial obstruction.

3. *Fatigued Heart:* Embarrassment of hearts function, the impaired but not lost arterio-venous balance evidenced by over-filled veins, approaching congestion, slight cough, easily provoked dyspnea, tachycardia—rarely bradycardia—indigestion, distended venules, pulse softer and more rapid, etc. Organic changes always present, dilatation or mural

change may not be recognizable but usually is found in its inception.

4. *Neurotic Heart:* A competent heart with abnormality in rate and rhythm, tachycardia, bradycardia or arrhythmia due to functional disease or local injury of nerve supply. There are no organic heart changes in cardiac neuroses *per se*. If persistent they may lead to hypertrophy and dilatation, especially if assisted by faulty nutrition, toxemia, or over-exertion.

The treatment of organic heart diseases is almost wholly regulated by the competency or degree of incompetency of the heart muscle, the condition of which is easily determined by the arterio-venous balance.

Returning to the question of inaccuracy, we repeat that the question is not accurate because it assumes as facts the presence of organic defects without the slightest proof of their presence, i. e., "heart weakness," "kidneys weak" and "digestion poor." Presumably the writer considered "digestion poor" because of "tongue coated."

When a physician is unable to make a precise interpretation of symptoms, sufficient to affirm or exclude disease or diseases, he should not resort to generalities but should precisely cite all the evidence—positive and negative—bearing on the suspected defects, in order to receive accurate advice in treatment as well as in diagnosis.

Third: Meaningless expressions and those having various interpretations are plentiful in the question quoted, e. g., "digestion poor", "tongue coated", "kidneys somewhat weak", "nervous system in fair condition" and "heart weakness." Although all the phrases are not strictly meaningless, they are practically so, for each of them implies several very different conditions and it would be unsafe to base any part of a diagnosis or treatment upon any or all of them. "Digestion poor" is as bad as "dyspepsia"; neither tell where the faulty digestion is located, or what functional or structural imperfection causes that derangement. It is well known that a coated tongue has little or no value as an aid to diagnosis and what little value it might have would depend upon the character of the coating. "Kidneys somewhat

"weak" needs no comment; possibly it was meant to imply that the bladder sphincter was atonic.

Why physicians persist in blaming such organs as the kidneys with "weakness" or other expression intended to indicate a more or less innocent functional defect, is difficult to explain. The same "weakness," although called torpidity," "sluggishness" or "disorder," is very often attached to the liver and almost invariably when that organ is wholly blameless. No wonder that so many patients come to us with the cheerful statement that their livers are "out of order", or "kidneys weak" and expect a one-dose-panacea. Usually the liver-out-of-order means a stomach or intestinal derangement, and the kidney-weak, a disease of the bladder, its sphincter, or prostatic urethra. "Lungs weak" is an absurd, but highly useful phrase—useful alike to the charlatan and the practitioner whose ears have not been trained to differentiate sounds.

It is the nervous system, however, that receives the most humiliating abuse in that it is so often—so very often—entirely ignored or worse than ignored in the conduct and chronicles of case examinations. If not overlooked, its imperfectness is usually indicated by "nervousness", "unstable", "poor condition", "debilitated", "paralysis", or as quoted above "in fair condition." Often writers confuse the reader by reporting one or even several very important findings which indicate important news—but leave only confusion. For example, under heading of Nervous System, stating only the following: Knee jerk absent, greatly impaired gait, pain in lower extremities and tremor of hands. Without more positive or negative symptoms no definite information is conveyed by the above report. The lesion is probably tabes or peripheral neuritis, but several other diseases could explain these symptoms. Such report is unusually aggravating for it is so nearly definite. Merely naming a few negative findings, or explaining character of gait and pain would probably make a diagnosis positive.

Physicians are apt to look upon diseases of the nervous system as being very difficult of recognition, whereas, being more definite, their detection is usually easier than diseases

of any other system. By learning the fundamental physiology of the nervous system, good definitions of the various diseases, and examining every patient for the easily elicited signs of nerve disorders, a physician soon qualifies himself as competent in neurological diagnosis. For having gone this far his interest is usually sufficiently awakened to cause him to advance his knowledge of differential diagnosis or at least to enable him intelligently to report cases in which nerve diseases exist.

Fourth: Lack of system in outlining the facts regarding a given case is the commonest of all faults, although the least important. It is unnecessary to point out this fault in example given—it hasn't a particle of system. Nevertheless, a case recital giving the points in their natural sequence is of decided assistance, not only to the reader but also to the writer. It insures a more valuable opinion, gives a better impression of the writer's ability, causes more readers to notice the description and, of greatest importance, it serves as a check to the writer, enabling him to avoid omitting points that might otherwise escape his attention. It is unnecessary to follow any particular system. Accustom yourself to one system or make one of your own, and always use it. It must be complete, comprehending all the headlines essential to the various features of a case description, and arranged with some attention to natural order. It is wise always to italicize the headings, punctuating each with a colon. Never use a single heading for all the symptoms; divide it into subjective and objective, and subdivide the latter into their proper sub-heads, not forgetting the general external appearances, the five apparatuses, and the chemical and microscopical findings.

Above all things (to repeat) do not omit a description of negative findings when there is any possible doubt of the accuracy and completeness of your diagnosis—a doubt which must always exist when you have failed to observe any part of a patient's skin, or, so far as possible, adequately to examine any function or structure.

Life insurance examiners will win the deserved praise and confidence of their chief examiners or medical directors

when they continuously report complete negative findings in respiratory, circulatory etc. apparatuses. In a report intended for a complete therapeutic demonstration or to describe life insurance examination, the examiner should evidence the character of his physical explorations by reporting negative findings whether or not a given apparatus is normal. For example, instead of reporting circulatory apparatus "normal," report sufficient details of negative findings to prove that the apparatus is normal, i. e., location of apex beat, upper and right lines of dulness (apex beat gives left area), rate, rythm and strength of beat, absence of murmur (if functional murmur is present give proof of its functional character), arteries straight and of normal texture, no venous congestion. In this way you avoid the temptation to slight your work, receive an excellent training, earn your fee, and, if in life insurance work, justify your promotion.

CHAPTER XII.

Important Rules Epitomized—The New Cell Food Adjuvant—Hygienic Reform.

This chapter is placed at the end of the book for use as a ready reference.

The New Animal Cellular Therapy: A treatment consisting of three principles: (1) A powerful cell tonic, alterative and nutritive fluid preparation used hypodermically. (2) A highly concentrated food in a solid preparation, used when nutrition is faulty and given by mouth. (3) Rules of hygienic reform varied according to indications.

It is the chief function of the first and basic principle of this treatment to increase or correct faulty relationship between the inherent processes of cell nutrition. It is the sole function of the other two principles to aid the action of the cell tonic by supplying elements and conditions essential to the betterment of cell metabolism.

Another vital feature of this therapy is the scientific application, on the part of therapeutists, of all agents or measures which correct or mitigate such conditions as may unfavorably influence general metabolic processes and which are not reached by the physiologic action of the combined treatment. In meeting such indications non-medicinal agents should be used as far as possible. Never use, except temporarily, a remedy which might cause undue cell decomposition, obstruct excretion or adversely affect the oxygen-carrying function of red cells.

Do Not Treat.—First, Any patient until you have (1)

thoroughly explored every structural apparatus of that patient in a scientific and exhaustive manner, and fully recorded the data derived from that examination; (2) carefully explained the reasons for the institution of a thorough hygienic reform and obtained patient's consent to obey your instructions; (3) given a proper preparatory treatment having for its purpose the excitation of active elimination, and the best possible preparation of digestive apparatus consistent with its condition at time of beginning treatment.

In making an examination of an applicant for the Lymph treatment, remember that it is made for the purpose of determining, so far as the diagnostic art permits, the following facts:

1. A complete knowledge of all functional or structural imperfections present, whether or not results of the examination enable you to *name* the disease present. Also the cause or causes of morbid findings.
2. The general cellular state and vital resistance of the individual.
3. The condition of apparatuses influencing metabolism, especially those which supply the body with nutrition and excrete its waste products.
4. The probable nature and duration of the treatment to be used, and the probable course and termination of the conditions treated.
5. A basis from which to recognize the future results of treatment. Unless you completely record primary examination you cannot expect to discover all the remedial effects of the therapy.

Second: Do not treat a patient addicted to habits which positively antagonize the action of a reconstructive therapy—such habits as alcoholism, morphine or cocaineism—unless the patient consents to the rapid or immediate withdrawal of the alcohol or drug under conditions dictated by you; the withdrawal to be begun immediately the use of the therapy is instituted. The same rule applies to any habit or custom which materially interferes with this cell therapy, e. g., excessive physical or mental work, over use of certain special functions and extremely unhygienic living. Persistent gambling, because of its serious nerve effects, is sure to

obstruct the action of a cell tonic, alterative and nutritive remedy.

Third: As it has been positively established that the rational use of the new cell therapy cannot possibly injure the body, there are no contra-indications to its exhibition so far as doing harm is concerned. However, it should not be used in any case unless a physician thoroughly conversant with its physiological action (herein described), finds by results of his examination that the morbid conditions present should be removed, benefited or checked by the use of the treatment.

Fourth: High bodily temperature (over 103.5 degrees Fahr.) if persistent, and severe acute toxemia will largely destroy the active principles in the Lymph Compound after injection of remedy. Therefore, its full effect cannot be obtained in acute infectious diseases except in the asthenic periods of such diseases, at which time the bactericidal and general reconstructive action of the therapy render it extremely valuable.

Preparatory Treatment.—In all cases, except when such measures are clearly unnecessary, twenty-four hours before using the Lymph Compound proceed as follows (the purposes of this preliminary treatment have already been stated) :

1. Confine patient to a very light, easily digested diet containing no food which might leave a residue. Such a diet as eggs, toast, crackers, milk, a clear soup and unsweetened coffee.

2. Exhibit calomel and soda bicarb. in small doses, frequently repeated, e. g., calomel 1-10 gr., sod. bicarb. 1 or 2 grs., thoroughly triturated and given every half hour for ten doses. Five or six hours after last dose give, if necessary, a saline. If you prefer not to administer calomel use any other laxative which is thorough and unirritating. Do not use a sweetened physic such as solution citrate of magnesia or compound licorice powder.

3. Have patient drink large quantities of some diluent containing no organic matter and as free as possible from inorganic elements so as to increase the solvent properties

of the water. Distilled water preferred. Diluent to be taken between meals, beginning two hours after eating.

4. If any morbid conditions are present which demand unusually free elimination (e. g., uremia, dropsy, chronic auto-intoxication), two or three days should be devoted to satisfying these demands before beginning the Lymph.

5. If chronic gastritis, stomach dilatation or obstinate severe atonic dyspepsia is present wash out stomach before breakfast each day and confine patient to a solid or semi-solid diet of small bulk and easily digested for two or three days before treatment. In gastrectasia always limit fluids to the minimum satisfying thirst with very hot or carbonated water.

6. If bowels contain an unusual amount of fecal matter or have been long distended with gas use enema-manipulation treatment (see Bulletins 37 and 38) together with calomel for two or three days before treatment.

7. Unless contraindicated have your patient take a turkish bath or its equivalent before treatment, and instruct all patients to take a full tub bath at least three times a week during treatment and to rub the areas used for injections with alcohol, morning and evening.

The Remedy—The Lymph Compound.—Examination of: The potency of the Lymph Compound is uninjured when its usual color is not changed to a dark blue or black and when, after standing twenty-four hours, the supernatant fluid remains clear. Microscopical examination of a drop of pure sediment (1-8 inch objective) should show perfectly preserved spermatozoa, white cells and a few red cells. For microscopical test the Lymph Compound should have stood over night and a drop of sediment removed with a long, sterile glass tube. As a test for sterility of Lymph inoculate an agar-agar culture tube and keep in a temperature of about 68 degrees Fahr. for forty hours.

Care of: It is of greatest importance that bottles containing Lymph Compound be kept hermetically sealed when not in use. Always transfer into small, sterile, glass-stoppered, colored bottles and closely follow printed instructions for such transference. Do not use the Lymph until it has

been thus transferred. Bind a piece of rubber protective or oiled silk, placed over each stopper, tightly around neck of bottle, or seal bottle with wax. The former method of sealing is preferred. The maintenance of a proper temperature is of less importance, yet the bottles should be kept as near 65 or 70 degrees Fahr. as possible. A temp. over 35 degrees or under 95 degrees will not injure the Lymph. In cold weather keep bottles in a covered box placed in a living room. In warm weather keep bottles in a cool room or cellar, never in refrigerator. If temp. of atmosphere is over 80 or 85 degrees place a pan holding ice near, but not in contact with, the Lymph bottles.

Immediately before filling syringe thoroughly shake the Lymph bottle. Use greatest care in sterilizing small bottles, syringes and needles.

Inject Lymph in buttocks, on either side of spine or in thighs. Insert needle quickly and at nearly a right angle to skin. Lymph must never be injected superficially. If subcutaneous tissue is very deficient inject Lymph into the muscles. After each injection rub site with deep pressure for at least thirty seconds. Never use any antiseptic for cleaning skin, sterilizing bottles, instruments etc., except plain water, alcohol or ether and heat.

During Treatment.—Remember the nature and complete physiological action of the Lymph and, therefore, closely watch and properly regulate the following: (1) Quantity and quality of food ingested—it should be easily digested, unirritating and varied so as to be properly proportioned in the four great classes of food stuffs. (2) Functioning of gastro-intestinal digestive processes. Especially must motor atony be actively treated as well as gaseous accumulations. (3) Compensatory action of eliminatory organs. Closely study, at frequent intervals, the daily quantity of urine excreted and amount of nitrogenous output. The degree of bowel activity must not be left to the patient's determination. Every day you must satisfy yourself that the bowels are adequately active. Commonly it is necessary to excite unusual action of sweat glands. (3) Become conversant with the symptoms of faulty metabolism (elsewhere discussed),

and immediately such symptoms arise search for and endeavor to correct their cause or causes. (5) At least once each week repeat your previous minute and complete physical exploration. The physiologic action of the Lymph should teach you that the greatest and often the earliest effects of this therapy are objective more than subjective. Therefore, if you expect to convince yourself and your patients of the full value of the therapy and desire to use it scientifically, you must carefully review the physical conditions at regular intervals and at least once each week.

THE CELL-FOOD ADJUVANT.

In order to supply the deficient food properties of the Lymph, there has been prepared a concentrated, easily digested and extremely nutritious food-stuff for use in diseases attended with deficient nutrition or inability to supply the added nutritional demands of a powerful tonic to cell functions.

Formula: Fresh, concentrated fluid from globus major and minor and epididymis of bulls' and goats' generative apparatus, together with the cellular elements of goats' blood (no serum), are first preserved by the same process used for the Lymph Compound, and then combined with sterile carbon so as to be made into a stable tablet easily broken up in stomach. Each tablet contains nine grains of the pure, concentrated and preserved orchitic fluid and blood corpuscles. To disguise the taste more perfectly small amounts of powdered extract of nux vomica (1-12 gr. to each tablet) and extract of gentian (1-2 grain to each tablet) are added. The carbon masses contain the absorbed animal nutritive principles. The carbon is made from best quality of sponges and willow bark. Each tablet weighs 15 grs.

Dose: One-half to one tablet three times a day, one-half hour before meals. Adults should (usually) be given one tablet t. i. d., one-half hour before meals. Children under puberty should be given one-half or one-fourth of a tablet, according to age. If size of tablet prevents its being swallowed easily it should be broken in several pieces before taking. When anorexia is present patient should allow tablet to lie on the tongue a few minutes before swallow-

ing so as to increase the stomachic action of the tablet's bitter principles.

Action: *First:* A highly concentrated cell food (chiefly proteid) or tissue builder. The testicular fluid and blood cells in one tablet contain nutritive principles which are sufficiently concentrated to equal, in food value, the end product of digestion of an ordinary proteid meal. Patients more rapidly gain flesh when this adjuvant is used with the Lymph.

Second: It possesses all the tonic properties of a testicular extract given by the mouth, such properties are, however, not marked. The bitter principles are too small in amount to have any action other than slight stomachic properties. The tablets are unirritating and are easily dissolved in the juices of stomach. They should be kept in a tightly covered receptacle and in a cool place.

Incompatibilities: Large amounts of alcohol (e. g. two ounces) and astringent preparations should not be used when these tablets are being administered.

Indications: May be used in all cases treated with the Lymph. Its use is not necessary if patients are well nourished, have perfect digestion and are able to assimilate adequate nutrition.

The value of this new adjuvant is far superior to the fluid preparation previously used. The need of such a concentrated food when using a cell tonic in most of the cases treated with the Lymph Compound is apparent.

In preserving the fluid used in these tablets no attempt is made to preserve cell protoplasm, as it is only possible to prevent the food principles from degenerating.

The nature of this cell food together with clinical tests made indicate that it is far superior to any concentrated food yet introduced. It cannot be successfully substituted because there has not yet been discovered any method for preserving animal matter which in any way equals the preserving process used in making the Lymph,— and the same process, with a single exception, is used for preserving the nutritive elements in the animal cells, albumen etc. used in this adjuvant.

The superior qualities of this cell food are, therefore, as follows:

1. It contains the highest type of nutritive principles.
2. The nutritive principles are prepared in a very highly concentrated form.
3. The food elements in the fluid and cells are preserved in their natural organic condition and in a very stable form. This is rendered possible by the preservation process used and also by the absorptive properties of the charcoal.
4. The method of combination and preservation renders this preparation unirritating and easily absorbed and assimilated.
5. This is the first concentrated and stable food containing pure, condensed orchitic fluid, yet offered the profession. Each particle of carbon absorbs and holds the ingredients of the two animal fluids and quickly gives them up in the stomach.
6. Like the Lymph it is not a secret preparation and therefore may be used intelligently and only when indicated.
7. It is absolutely harmless. In itself it can accomplish nothing except as a cell food. Other than this its tonic properties are practically nil.
8. It will in no way interfere with or modify the exhibition of usual adjuvants used with the Lymph except powerful astringents or large doses of alcohol. Even the above exceptions may be used, only they will partly destroy the food elements in the tablets.

HYGIENIC REFORM.

The printed instructions furnished physicians illustrate the hygienic rules which should be enforced while this reconstructive therapy is being used. These rules should be altered or supplemented to meet indications in concrete cases. The diet rules especially need frequent changing. No diet can be applicable to all cases. The foods named are merely examples of an easily digested nutritious regimen. Overeating and insufficient mastication should be carefully avoided.

Instruct all patients that this or any similar therapy can-

not accomplish its full tissue effects unless the individuals treated do everything in their power to keep the bodily functions in the best possible condition.

Emphasize particularly the ill-effects on the cellular state of those habits which provoke undue cell decomposition, increase waste or impair vital functions; such habits as excessive physical exercise, customs which cause mental fatigue, frequent sexual excitation, over-use of tobacco, irregular and insufficient sleep, unsanitary living etc.

Diluents should be taken freely, although large quantities should not be taken within an hour of a meal. Character of diluent selected should be determined by diseases and conditions being treated.

Teach patients to utilize the greatest of all natural cell foods and tonics—oxygen. Slow, deep inhalations in the open air, at regular intervals, possess greater prophylactic and remedial value than any of the natural forces commonly utilized by man.

Very little can be expected from education in hygiene and sanitation unless the instructor repeats his instructions many times in an emphatic, explanatory, convincing manner and frequently cross-examines his patients regarding their conduct and obedience. We must not assume that we have done our full duty when we have once outlined to patients a course of hygiene and then shifted responsibility to their shoulders.

CONCLUSION.

It seems fitting to conclude this brief contribution to the literature of animal as well as cellular therapy with a synopsis of the present status of cellular therapy as supplemented by the original demonstrations contained in this text.

Cellular therapy, as represented by cell stimulants and tonics (or foods) either non-medicinal in character or, if medicinal, indirect in action, is by no means a new departure in medicine. On the other hand cellular therapy represented by efficient, direct, medicinal cell tonics is of comparatively recent origin.

All medicinal or non-medicinal agents which in any way favor tissue construction or cell metabolism belong to this department of therapeusis. Until quite recently practically all the medicinal remedies which aided metabolic processes were indirect in action, e. g., drugs which increase elimination, digestion or secretion; while agents acting directly upon the nutritional function or metabolism of a cell were confined to such non-medicinal measures as dietotherapy, hydrotherapy and mechanotherapy.

Aulde was probably the first scientist to emphasize the value of, and excite general interest in cellular therapy as a distinct entity and as requiring primarily an active direct cell tonic remedy. At the same time he introduced a direct cell tonic which he very properly called "nuclein."

Although Aulde deserves the credit for giving prominence to the term cellular therapy, the real genesis of medicinal cell tonics may be dated from June 1st, 1889, when Brown-Sequard made his first definite communica-

tion to the profession regarding his orchitic fluid. This fluid was, however, filtered and highly diluted. From the above date to the early part of the year 1899, when the Lymph Compound first came into general use in perfected form, only two efficient, direct, medicinal cell tonics were discovered, namely, Aulde's nuclein and Poehl's spermin.

To complete the description of the present status of cellular therapy we must enumerate the salient original features of the latest advance in the treatment of pathologic cell changes.

Those who have followed the writer to this point in his citations of fact and theoretic demonstration will surely acknowledge that the lymphatic-testicular preparation herein described is, at least, a new remedial principle of established value and that its original features are numerous, decided and of great import to the future evolution of cellular therapy along lines of animal derivatives.

The nature, action and results of this new animal therapy have conclusively demonstrated: (1) That normal, *unfiltered* animal fluids or secretions which contain motile protoplasmic bodies after being diluted 75 per cent with an emulsifying menstruum may be injected subcutaneously without causing local or systemic injury; (2) that the glands which generate motile protoplasmic bodies after having been reduced to a semi-solid consistency, diluted 75 per cent and emulsified, connective tissue and fat removed—the resulting sedimentary fluid extract may be used in the same manner and with the same impunity as the similarly prepared fluids above described; (3) that a combination of the above fluids and fluid extracts contains at least three active principles in a condensed form; (4) that it is possible to preserve all the elementary normal constituents of the above named animal derivatives indefinitely and so as to retain their active principles in their natural unchanged condition in order that when liberated in the tissues of the body these principles will be absorbed and will act in a *nascent* state; (5) that these same active principles have unusual remedial properties, namely: a powerful tonic, nutritive and alterative action on

CONCLUSION.

fixed tissue cells, a marked tonic effect upon the functions of phagocytes, and other valuable physiological actions upon the cardiovascular and nervous systems and the parenchyma of secretive and excretive organs or glands; (6) finally, that when the above combined preparation is properly administered it will lessen or remove pathologic cell changes and partly or wholly compensate, in a given organ, for a partial cell destruction by increasing the resistance and functioning of unchanged cells and those not completely metamorphosed.

Although those of us who are experienced in the clinical use of the Lymph Compound fully realize that we have by no means attained perfection in the field of cellular therapy, we do know and should constantly bear in mind the fact that a majority of the curative results accomplished by this remedy and its rational adjuvants are of a character rarely reported in the literature of internal medicine.

Remembering the above facts and recognizing the developmental possibilities of the future our duties to this new therapy, as regards its application, protection and advancement, are clearly defined and imperative.

